

# Revisiting Passive Participles: Category Status and Internal Structure

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This article challenges the view that eventive and stative passive participles are verbs and adjectives, respectively. Instead, I argue that existing diagnostics are sensitive to the eventive/stative contrast and to independent restrictions on word order. I show that both eventive and stative participles in Serbo-Croatian have the external syntax and morphology of adjectives, and propose that passive participles in various languages are adjectives that embed varying amounts of verbal structure. Finally, I contend that agentive phrases are always available with stative participles that entail a prior event in languages that obligatorily express grammatical aspect on the verb stem.

*Keywords:* passive participle, deverbal adjective, argument structure, Voice, Distributed Morphology, Serbo-Croatian

## 1 Introduction

Participles have long puzzled linguists because they exhibit behaviors characteristic of both verbs and adjectives. For example, the participle in (1a) is arguably generated in the same position as a verb in a typical active sentence, whereas its counterpart in (1b) can appear as a pronominal modifier—a canonical adjectival position.

- (1) a. The window was opened (by the teacher).  
b. the (carefully) opened window

In this article, I examine *eventive passive participles*—those that denote an event, as in (1a)—and *resultative passive participles*—those that denote a state resulting from a prior event, as in (1b); see Kratzer 2000 and Embick 2004, among others.<sup>1</sup> I argue that the classification of passive participles into verbal (1a) and adjectival (1b) should be rejected. Instead, I show that all passive participles in a number of languages (Serbo-Croatian (SC), Greek, English, and German)

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<sup>1</sup>In order to streamline the discussion, I will set aside what Embick (2004) terms (*purely*) *stative participles*, namely, elements that have the form of a participle, but denote a simple state—a state without any event implications. These elements are uncontroversially adjectival, and it is not even clear that they should contain any verbal structure (see the discussion in Embick 2004).

should be uniformly analyzed as adjectives that embed varying amounts of verbal structure. I furthermore argue that there is a difference between SC and Greek, on the one hand, and English and German, on the other, which allows resultative participles to appear with agentive *by*-phrases in SC-like languages, but not in English-like languages, as seen in the translation of (2).<sup>2</sup> This difference stems from the fact that resultative participles in SC-like languages encode perfective viewpoint aspect on the verb stem. Since resultative participles in these languages include Asp, the presence of lower portions of the verbal structure (including VoiceP, the projection that introduces the external argument) follows.

- (2) Vaza je ostala **po**-lomljena od strane nestašnih patuljaka.  
 vase COP.3SG remained **P(ER)F**-broken by side mischievous dwarfs  
 Lit. 'The vase remained broken by the mischievous dwarfs.'

Before we move on to the article's main proposals regarding the categorial status of passive participles (sections 3 and 4) and their internal structure (section 5), I will briefly sketch the approach to passive participles in work that assumes the existence of a generative lexicon, and show how it fares in the context of more recent theories of word formation, such as the Distributed Morphology (DM) framework (section 2). Because I will conclude that lexicalist approaches are unable to account for the properties of the different types of passive participles in a principled way, section 2 also elaborates on some of the basic tenets of DM, which I adopt here.

## 2 Theoretical Background

Since at least Wasow 1977, a categorial distinction has been assumed in the generative literature between participles that are verbs (1a) and those that are adjectives (1b). Levin and Rappaport (1986) have claimed that the distributional pattern observed in (1) goes hand in hand with a subtle difference in meaning: whereas verbal participles have an event reading, adjectival participles are associated with a state reading. Furthermore, works that assume a generative lexicon have proposed either (a) that verbal participles are derived in the syntax, and adjectival participles in the lexicon (Wasow 1977, Horvath and Siloni 2008, Meltzer-Asscher 2011a), or (b) that both types of participles are derived in the lexicon (Bresnan 1982, Levin and Rappaport 1986).

There are several issues with the lexicalist treatment of passive participles. First, since adjectival participles are, by hypothesis, formed in the lexicon, it is predicted that the syntax should treat them as ordinary adjectives. However, Kratzer (2000) and Embick (2004) show that adjectival passives can be phrasal in nature and exhibit patterns that are impossible with ordinary adjectives, such as modification by manner adverbials (cf. *a hastily blackened wall*/\**a hastily black wall*). This suggests that the syntax does not treat adjectival participles as simplex adjectives. In section 4, I furthermore show that all passive participles in SC have the external syntax and morphology of adjectives, which makes accounting for the differences between them in a principled way virtually impossible in a lexicalist framework.

<sup>2</sup> The SC examples will never feature proper names in the *by*-phrases. This is because proper names in *by*-phrases are independently dispreferred for all passives (eventive and resultative).

More broadly, under the view that there exists a separate generative lexicon in addition to a generative syntax (Chomsky 1970), we should in principle not expect the composition of “words” to resemble the composition of larger syntactic units in any systematic way. Whether such a lexicon exists is, of course, an empirical question. However, research in the past few decades has provided extensive argumentation, both empirical and conceptual, that postulating a generative lexicon is at best superfluous (see, e.g., Baker 1985, 1988, Lieber 1992, Marantz 1997, Alexiadou 2001, Bruening 2018). This new line of thinking has had a profound impact on the empirical domain that is of interest here, with most works on passive participles in the past two decades rejecting the lexicalist view (e.g., Anagnostopoulou 2003, Embick 2004, Alexiadou and Anagnostopoulou 2008, Sleeman 2011, McIntyre 2013; *pace* Meltzer-Asscher 2011a). One major argument for doing so is that word formation rules claimed to account for the existence of adjectival passives amount to a duplication of operations already available in the syntax. This is because, whatever the right formulation of the relevant lexical rules, the majority of them must arguably also be available for verbal passives, only in the syntax (see Levin and Rappaport 1986:624).

I therefore reject the lexicalist position and instead pursue an approach to word formation broadly in line with the DM framework. In particular, I adopt the view that syntax is the only generative component in language (Halle and Marantz 1993, 1994). There is no generative lexicon; rather, morphological structure is (derived from) syntactic structure. Hence, if any subclasses of passive participles do turn out to exist, they must be shown to follow from structural (or featural) differences, rather than differences in the identity of the grammatical component in which they are derived. I will also adopt the idea that acategorical roots are the minimal open-class units of (morpho)syntactic computation (Marantz 1997). In order to be realized, roots must be categorized by merging with (at least one) functional head. Guided by this assumption, I will argue that passive participles do not start out with a predetermined categorial feature such as “verb” or “adjective”; instead, they become categorized in the course of the derivation. Crucially, this derivational view of categorization allows us to argue (in the presence of suitable evidence) that a categorial head may be added to an already categorized element.

The remainder of this article is organized as follows. In section 3, I inspect the purported distinction between verbal and adjectival participles in detail. More specifically, I examine the main diagnostics that have been proposed to distinguish between the two types of participles, and show that they do not diagnose category differences, even in English. In section 4, on the basis of a combination of morphological and distributional facts, I argue that a categorial distinction between verbal and adjectival passives cannot be maintained for SC, even though SC has both eventive and resultative passives. Instead, I show that all SC passive participles are adjectives (similar proposals for English can be found in Freidin 1975, Emonds 2006, Lundquist 2013, and for Arabic in Fassi Fehri 2013), which embed varying amounts of verbal structure. I argue that an analysis of all passive participles as being uniformly deverbal adjectives is viable for a number of other languages where they have previously been analyzed in terms of a distinction between verbs and adjectives. In section 5, I discuss the effect of perfective and imperfective marking on passive participles in SC, and the role of aspect more generally. I then tackle the issue of why resultative participles may combine with agentive *by*-phrases in SC and Greek, but not in English

and German. I propose that the two types of languages use different strategies to derive resultative participles. SC-like languages do this with the perfective aspect, which attaches above the external argument and explicitly implicates the completion of the underlying event. In English-like languages, resultative participles are derived using a dedicated stativizing morpheme that selects vP—a verbal projection that excludes the external argument. In light of this proposal, I address the claim that adjectival participles in English can include external arguments (McIntyre 2013, Alexiadou, Gehrke, and Schäfer 2014, Bruening 2014). While this is in principle true, I show, contra Bruening 2014, that resultative passive participles cannot include true agentive *by*-phrases. In section 6, I summarize the main points and discuss some questions that remain for future research.

### 3 Existing Diagnostics Do Not Test for Category Differences

In this section, I discuss the diagnostics that have been argued to distinguish between so-called verbal and adjectival participles in English. I will continue to use the terms *verbal* and *adjectival* participle in this section, to make clear what I am arguing against. I will switch to the terms *eventive* and *resultative* participle in section 4, where I discuss SC participles, which, as I will show, are unambiguously adjectival.

The distributions of English adjectival and verbal participles have been argued to differ in a number of ways. The former are said to appear as prenominal modifiers and as complements of verbs such as *seem* and *remain*, and to allow *un*-prefixation (Wasow 1977, Levin and Rappaport 1986, Embick 2004). To test the claim that the enumerated differences stem from a category contrast, proponents of this view often rely on the assumption that only verbal passive participles can be modified by agentive *by*-phrases, presumably because English adjectival passives lack implicit initiators (Levin and Rappaport 1986, Baker, Johnson, and Roberts 1989, Grimshaw 1990, Embick 2004, Emonds 2006, Sleeman 2011; see Kratzer 2000 for German).<sup>3</sup> It has also been argued that only verbal participles can be derived from ditransitive verbs and followed by subcategorized material, and that only they allow postmodification by adverbs. In the remainder of this section, I discuss the proposed diagnostics, concluding that none of them truly test for a category contrast between verbs and adjectives.

A clarification is in order before we proceed. The literature on passives recognizes two broad classes of participial *by*-phrases: event-related (agentive) and state-related (Rapp 1996, 1997, Gehrke 2011, 2013, 2015, McIntyre 2013, Alexiadou, Anagnostopoulou, and Schäfer 2015). Event-related *by*-phrases are arguably associated with the participles' underlying verbal structure, while state-related ones are associated with the adjectival layer. Since only the former type is supposed to be unavailable in English adjectival passives, only they will be used in the discussion of examples that have been argued to be verbal.

A number of authors have proposed that participles in the prenominal modifier position must be adjectives, and that their verbal counterparts are illicit in this context. As shown in (3a–b), attributive participles do not allow modification by agentive *by*-phrases, which have been argued

<sup>3</sup> This is not an uncontroversial assumption; I address it in more detail in section 5.2.

to combine only with verbal participles in English. However, this ban is not limited to *by*-phrases; no material is allowed to intervene between the participle and the noun (3c). What seems to be at issue here is an independently identifiable restriction that holds across a number of languages, requiring that a prenominal modifying expression be head-final (the Head-Final Filter; Williams 1982). This accounts for the unacceptability of (3b–c), but crucially also (3d), which is unambiguously adjectival. Note that it is possible for both the participle and the *by*-phrase to appear to the right of the noun, as in *a cake baked by the students*, but these modifiers have been argued to project a full-fledged CP (see Sleeman 2011). I will therefore not address them here.

- (3) a. a baked cake  
 b. \*a baked by the students cake  
 c. \*a baked yesterday/in the kitchen cake  
 d. \*the fond of Sam boy

A contributing factor here is that even among those languages that exhibit the Head-Final Filter, English is special in that it also bans PPs from appearing to the left of a prenominal modifier. Such placement of PPs is possible, for example, in SC (4a), Dutch (4b), and German (4c), and in these languages the passive participle and the *by*-phrase happily cooccur. The ban on agentive *by*-phrases in this environment in English is then likely due to its rigid word order rules, not to the category status of the participle.

- (4) a. od strane naše učiteljice otvoreno pismo  
 by side our teacher opened letter  
 b. de door Jan geopende brief  
 the by Jan opened letter  
 (Sleeman 2011:1574)  
 c. der vom Kellner eingeschenkte Wein  
 the by.the waiter poured wine  
 (Rapp 2000:396–397)

Another widely used diagnostic is the participles' (in)ability to head the complement of verbs like *seem* and *remain* (5), which can take adjectival but not verbal complements. Again, the ungrammaticality of (5) with an agentive *by*-phrase has been used as evidence that such participles are verbs.

- (5) The suitcases seemed/remained packed (\*by Tiyana's friends).

However, as I will show, the claim that eventive participles are illicit in this environment because of their categorial status is inadequate. A more promising account of these data, I argue, combines the fact that the participle in (5) does indeed have an eventive component with the fact that both *seem* and *remain* specifically require that their bare complements be stative. Consider (6). As (6a) shows, *seem* and *remain* can take nominal complements. Despite this, there is no eventive noun that could take the place of *a fool* in (6a). Additionally, the contrast in (6b–c) is meant to show that *destruction* can appear as the complement of *remain* when it is resultative, but not when it is an eventive, argument-taking nominalization. The issue in (6c) is clearly the

eventive interpretation of the noun, not its categorial status. If we extend the same kind of reasoning to (5), the argument for invoking a categorial contrast within the class of passive participles disappears. Rather, it seems that, within the class of participles formed from change-of-state verbs, which can be interpreted as either eventive or stative, the agentive *by*-phrase precludes a stative reading. This then clashes with the requirements of the participles' selecting heads, explaining the ungrammaticality of (5). Note that this stativity requirement is in addition to, not instead of, the requirement that these verbs take AP complements. Therefore, *\*The children remained love their parents* is ungrammatical because *remain* cannot take a verbal complement.

- (6) a. He seemed/remained a fool his whole life.  
 b. There remained much destruction throughout the city.  
 c. *\*There remained much destruction of the city by those left behind.*

It has also been argued that only adjectival participles freely combine with the negative prefix *un-* (7a). The reasoning behind this claim is that negative *un-* generally attaches to adjectives (7b), whereas verbal forms may only compose with *un-* if its meaning is reversative (7c).

- (7) a. The road seemed unmarked and dangerous.  
 b. The child seemed unhappy.  
 c. The truck was unloaded by the workers.

Now, whether we should treat the prefixes in (7a–b) and (7c) as two distinct (but homonymous) morphemes, or as one morpheme that can receive two distinct interpretations depending on the environment it appears in, is an open question. However, given (a) the observation that the agentive *by*-phrase forces an eventive interpretation of the English participle and (b) the fact that one *un-* form is shared by the two meanings, of which only the reversative is itself eventive, it is not surprising that (7c) should get the reversative reading.<sup>4</sup> It is also not surprising that the prefix *un-* in (7a) should get a negative interpretation given the conclusion that *seem* requires stative complements and would therefore not be compatible with the reversative interpretation of *un-*. None of this, I believe, bears directly on the categorial issue. Note, however, that it is not the case that negative *un-* can *only* attach to participles in typical stative contexts and unaccompanied by agentive *by*-phrases, as seen in (8). I set aside this issue for now, returning to it in section 5.2.<sup>5</sup>

<sup>4</sup> Notice that (7c) becomes ambiguous once the *by*-phrase is removed—that is, it turns into a classical case of structural ambiguity (viz., [un [load ed]] (negative stative) vs. [[un load] ed] (reversative eventive)).

<sup>5</sup> Interestingly, while combining passive participles with negative *un-* and an agentive *by*-phrase is not always possible in a main clause (ia), it is fine in a reduced relative clause (ib).

- (i) a. *\*The bills were unpaid by our parents.*  
 b. The bills unpaid by our parents will remain for us to pay.

This contrast also obtains in SC (where participles that denote states resulting from prior events can otherwise be modified by agentive *by*-phrases, as I discuss in section 5.1), and the reasons for it are poorly understood. One possibility is that the contrast in (ia–b) is due to some as yet unidentified semantic differences between finite main clauses and reduced relative clauses. Another possibility is that the contrast is due to the structural differences between the two examples. In other words, it could be that *paid by our parents* is a chunk of verbal structure that, under the particular syntactic circumstances that occur in reduced relative clauses, can be stativized in its entirety and therefore is a candidate for negative *un-* affixation.

- (8) a. Word-final stops are often unreleased by speakers of US English.  
 b. The testimony was unchallenged by the appellant.

One diagnostic that specifically claims to single out verbal passive participles is postmodification by adverbs. Meltzer-Asscher (2010) shows that, while all participles and verbs allow premodification, eventive participles pattern with verbs in allowing postmodification by adverbs, to the exclusion of resultative participles (9). According to her, this contrast shows that the eventive participle is a verb. Meltzer-Asscher does not give an analysis of these facts, but merely points to the pattern in (9), a legitimate move.

- (9) a. The silver was polished carefully. (eventive participle)  
 b. He polishes the silver carefully. (finite verb)  
 c. \*The silver seemed polished carefully. (resultative participle)

However, there is an explanation for the contrast in (9) that does not appeal to a categorial contrast between eventive and resultative participles. Namely, it could be that the verb/participle is moving over the adverb, and it can do so in (9a–b), but not in (9c). To see this, consider (10), where the adverb *wryly* intervenes between the verb *smile* and the PP *at me*.

- (10) I saw Pace smile wryly at me.

Note first that the adverb *wryly* is modifying the event of smiling at me, which suggests that *smile at me* needs to compose first, before *wryly* enters the structure. Furthermore, the fact that the complement of *at* is pronominal makes this PP a bad candidate for extraposition. Therefore, the only way to derive the word order in (10) is to assume that the verb moves above the adverb—for example, to Voice, the projection that introduces the external argument (e.g., Harley 1995, Marantz 1997). Independently of these facts, I will argue in section 5 that the English resultative passive participle (unlike the eventive participle) lacks the Voice layer. This will mean that the verbal material cannot move leftward, and it will also immediately give us an explanation for the contrast in (9).

Wasow (1977) suggests that some passive participles must be verbs because they are followed by subcategorized material that is selected (11a). He argues that this is impossible with pure adjectives (11b). However, this observation is empirically unjustified, given that some adjectives have selectional requirements. For example, *reliant* in (11c) selects for a PP headed by (*up*)*on*.

- (11) a. John is considered a fool.  
 b. \*John is obvious a fool.  
 (Wasow 1977:341)  
 c. John is reliant (*up*)*on* his parents.

Relatedly, Wasow argues that adjectival participles cannot be derived from double object verbs (12a). Nonetheless, this generalization also seems to be empirically incorrect, as witnessed by (12b). Searching the Web, one can easily find examples of adjectival participles derived from ditransitive verbs such as *grant*, *allow*, *deny*, and others.



- (12) a. \*John seems given first prize every time we have a contest.  
 b. . . . I seemed granted the ability to recognize things for what they truly were.  
 (David Crouse, *Copy Cats*, p. 140)

At least a partial explanation for the badness of (12a) can be found in Matushansky 2002. Namely, the verb *seem* requires its bare internal argument to refer to a state that is perceptually available to the experiencer. Whereas the state that results from having been granted the ability to recognize things for what they are may have visible consequences on my behavior, for example, the state resulting from having been given first prize every time there is a contest will not be perceptible on John.<sup>6</sup> It should also be noted that, while a lexicalist approach to adjectival passives will struggle to account for data like (12b), a syntactic account can easily do so by invoking the presence of the verbal layer that introduces the oblique argument.

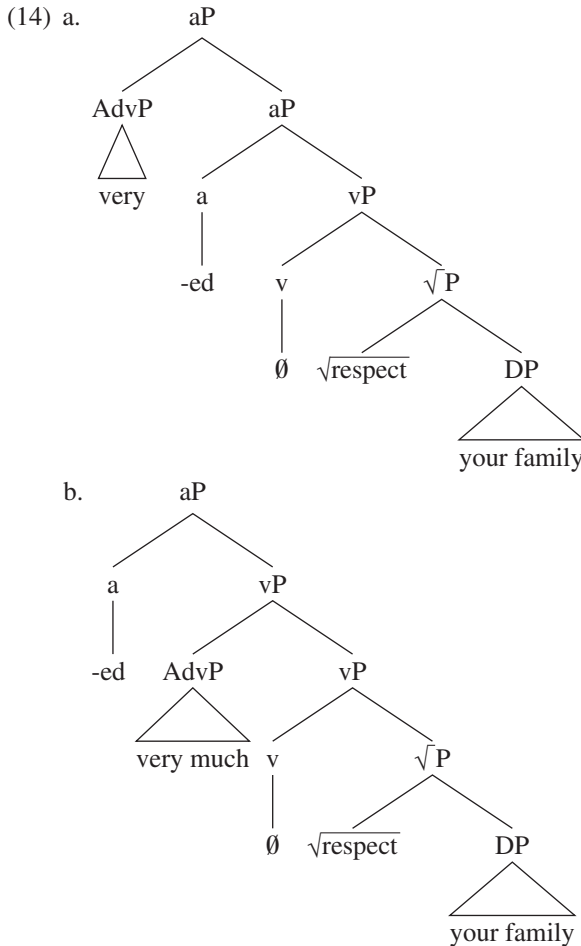
The final diagnostic I discuss pertains to the behavior of degree modifiers such as *very* (*much*). Wasow notes that whereas verbs and adjectives cannot be modified by the same type of degree modifier (13a–b), participles seem to allow either (13c). He then assumes that the two different modifiers in (13c) are possible because the string in (13c) can arise from two different derivations, with two different participles: one participle is a verb and the other an adjective. Although this analysis is in principle possible, my purpose here is to show that this kind of data can equally well be accounted for under a syntactic approach to word formation. Namely, even if the participle is a deverbal adjective in both cases, the two possibilities could be accounted for by appealing to different heights of attachment of the modifiers. As the schematic representation in (14) illustrates, *very* attaches to the adjectival layer, and *very much* attaches to the verbal layer embedded below.<sup>7</sup>

- (13) a. John very \*(much) respects your family.  
 b. John is very (\*(much) fond of your family.  
 c. Your family is very (much) respected.  
 (Wasow 1977:340)

<sup>6</sup> It could also be that (12a) is perceived as ungrammatical by some speakers because it garden-paths into *given* as a P, not a participle.

<sup>7</sup> Note that the approach I take does not suppose that all participles will need to admit both modifiers. After all, *very*, which modifies simple adjectives, is simply incompatible with nongradable adjectives (e.g., \**very parliamentary elections*). Therefore, if some participles resist modification by *very* (e.g., ?*The glass was very broken*, \**The man was very arrested*), this tells us nothing about their categorial status.





What is important to highlight before we move on to a discussion of SC passive participles is that (a) none of the diagnostics found in the literature seem to successfully identify contexts that host passive participles and can independently be shown to host verbs, but not adjectives, and (b) we were able to give alternative explanations for why agentive *by*-phrases are unacceptable in certain contexts. This state of affairs is compatible with the claim that all passive participles are, in fact, deverbal adjectives. Although positive evidence for this claim is difficult to come by in English, let us look at one argument to this effect from the closely related German. In German, as in English, agentive *by*-phrases are disallowed in stative contexts (15a).<sup>8</sup> As with English, the reason for the ungrammaticality of (15a) is taken to be that this participle is an adjective (see Alexiadou, Gehrke, and Schäfer 2014 for more details of one such analysis). Now, compare (15a)

<sup>8</sup> German participles in the complement position of the verb *sein* 'be', as in (15a), are obligatorily stative. Eventive participles in the predicative position are introduced by the verb *werden* 'become'.

and (4c), repeated here as (15b). Once the participle is in the adnominal position, the agentive *by*-phrase can reappear. Importantly, however, the participle in (15b) obligatorily has an eventive interpretation (see Rapp 2000). If we want to maintain that prenominal modifiers in German are adjectival phrases, the conclusion must be that agentive *by*-phrases in such a language are licensed only in eventive contexts, even when the outermost structural layer of the participle is clearly adjectival.<sup>9</sup>

- (15) a. \*Der Wein ist vom Kellner eingeschenkt.  
 the wine is by.the waiter poured  
 b. der vom Kellner eingeschenkte Wein  
 the by.the waiter poured wine  
 (Rapp 2000:396–397)

Finally, I would like to draw attention to a more general issue with using the (un)availability of agentive *by*-phrases to make claims about category differences. Whereas it is undoubtedly true that the insertion of the *by*-phrase can, under the right circumstances, give participles a more eventive flavor, it is helpful to keep in mind that *by*-phrases are also possible with eventive nominalizations, which clearly have the distribution of nouns. This suggests that the *by*-phrase is not sensitive to the categorial status of the element it modifies (i.e., its external syntax), so long as that element contains enough verbal structure. This observation weakens the cogency of the diagnostics used to make claims about the category distinction between adjectival and verbal participles, given that many of them rely on the assumption that only verbal elements may appear with agentive *by*-phrases.

#### 4 Category Membership: Evidence from SC

In this section, I will introduce data from SC, whose rich morphology can inform the analysis of passive participles more generally. Passive participles in SC have a distribution largely similar to that of their English counterparts, modulo the fact that SC participles are additionally influenced by grammatical aspect. I discuss the influence of aspect in more detail in section 5.1, once I have established the categorial status of the participle. As in the English (1), the participle in (16a) forms part of a passive predicate, whereas in (16b) it is used attributively.

- (16) a. Prozor je po-lomljen od strane huligana.  
 window COP.3SG PF-broken by side hooligans  
 ‘The window was broken by the hooligans.’  
 b. po-lomljen prozor  
 PF-broken window  
 ‘a broken window’

<sup>9</sup> An alternative analysis is given by Sleeman (2011), who argues that prenominal participial modifiers are reduced relative clauses. For Sleeman, then, concord between the modifier (participle or adjective) and the noun is seen as “an attributive property rather than a purely adjectival property” (Sleeman 2011:1575n8). This could account for the relevant data in a language like Dutch or German, where only attributive adjectives show concord. However, it cannot account for why all adjectives and participles (but not other categories) in a language like SC also show number/gender agreement with the noun in the predicative position.

The SC perfective participle in (16a) is ambiguous between a bounded eventive reading and a resultative reading.<sup>10</sup> I discuss the reasons behind this ambiguity in more detail in section 5.1. As I focus on the categorial status of the participle in the remainder of this section, I will use disambiguating contexts that only admit one interpretation (eventive or resultative). Each claim I make will be tested against both types of participles. When talking about eventive participles, I will use imperfective-marked participles with a *by*-phrase modifier (17a), which ensures an (unbounded) eventive interpretation of the passive construction in SC. When talking about resultative participles, I will use perfective-marked participles that appear as complements of *činiti se* ‘seem’ (17b) or a similar verb, and are modified by an event-related adverbial.<sup>11</sup>

- (17) a. Opomene su juče pisane od strane vlade.  
 warnings COP.3PL yesterday written(IMPF) by side government  
 ‘Warnings were being written by the government yesterday.’  
 b. Te čestitke su mi se činile skoro na-pisane.  
 those cards COP.3PL me SE seemed recently PF-written  
 ‘Those cards seemed recently written to me.’

Going back to the question of categorial status, the most obvious reason to claim that SC passive participles are adjectives is that both resultative (18a) and eventive (18b) participles are derived by means of adjectival morphology (cf. (18c), a pure adjective). The adjectival suffix *-n* is separated with a hyphen.

- (18) a. Taj telefon mi se činio nedavno kuplje-n.  
 that telephone me SE seemed recently buy(PF)-ADJ.MASC.SG  
 ‘That telephone seemed to me recently bought.’  
 b. Njegov novac je uzima-n od strane . . .  
 his money COP.3SG take(IMPF)-ADJ.MASC.SG by side  
 ‘His money was being taken by . . .’  
 c. Kraj romana je tuža-n.  
 end novel COP.3SG sad-ADJ.MASC.SG  
 ‘The end of the novel is sad.’

I should note that, with a limited number of verbs, the passive participle has a form distinct from the one given in (16)–(18). In addition to being formed using the dominant suffix *-n*, the passive participle may be formed using the suffix *-t* (19).<sup>12</sup> SC also has the (less frequent) adjectival suffix *-it* (e.g., *ponos-it* ‘proud’; cf. *ponos-an* ‘proud’). There is no obvious semantic difference between this suffix and the more common adjectival suffix *-n*. It could therefore be the case that

<sup>10</sup> I use the term *bounded* to denote that an event has a (linguistically expressed) temporal boundary (see, e.g., Declerck 1989).

<sup>11</sup> The adverbial is there to prevent the purely stative reading of the participle; see Embick 2004.

<sup>12</sup> Both suffixes (*-n* and *-t*) are inherited from Proto-Indo-European (*\*-no-* and *\*-to-*, respectively), not only in Slavic, but also in English (cf. *given* and *brought*). Their distribution in the different Indo-European languages has, of course, diverged from the original picture. None of this is unexpected when it comes to derivational morphology, which often exhibits these types of idiosyncrasies crosslinguistically.

the adjectival suffix *-it* (or a version of it) is involved in deriving (19). Since there are no distributional or semantic differences between the participles derived with *-n* and *-t* in SC, I assume that they belong to the same category, and I abstract away from these differences in the remainder of the article.

- (19) Pehar je da-t mojoj majci.  
 cup COP.3SG give(PF)-ADJ.MASC.SG my mother  
 ‘The cup was given to my mother.’

Now, going back to the suffix *-n*, most traditional SC grammars state that the adjectival suffix in question is actually *-an* (cf. (18c)), though many do place the vowel in parentheses: *-(a)n*. I believe there is good evidence that this vowel is epenthetic (used to break up an illicit coda cluster, e.g., [3n] in (18c)) and that the adjectival suffix is, in fact, *-n*. Namely, the epenthetic vowel is only present when the adjective is indefinite (nonspecific) masculine, as in (18c), and disappears when the adjective is feminine (20a), neuter (20b), or masculine definite (20c).

- (20) a. tuž-n-a priča ‘a sad story’  
 b. tuž-n-o dete ‘a sad child’  
 c. tuž-n-i kraj ‘the sad ending’

Unlike the indefinite masculine form, the forms in (20a–c) have an additional final agreement vowel, which has the effect of producing a word that conforms to the phonotactic rules of the language. Since *-n* is then no longer part of an illicit coda, the epenthetic vowel does not appear (cf. *\*tužana priča* ‘a sad story’). I therefore take the adjectival suffix, which appears with both simple adjectives and participles, to be *-n*. Determining the status of the vowel in the adjectival suffix is relevant because the vowel that separates the root and the adjectival suffix on the past participle in, for example, (18a–b) behaves differently—it is preserved in all contexts. This suggests that the nature of the vowel in past participles is different from the nature of the vowel in underived adjectives. I discuss the role of this so-called thematic vowel on participles in section 5.1.

The agreement vowels in (20a–c) also appear on passive participles. This is true both for resultative (21a) and eventive (21b) passives. Matching in gender and case features is indeed characteristic of adjectives; purely verbal forms in SC agree with their subjects only in person and number (21c).

- (21) a. To parč-e kuće je izgledalo nespretno  
 that piece-NOM.NEUT.SG house COP.3SG looked clumsily  
 sklepa-n-o.  
 put.together(PF)-ADJ-NEUT.SG  
 ‘That part of the house looked clumsily put together.’  
 b. Ove čarap-e su štrika-n-e od strane moje bake.  
 these sock-NOM.FEM.PL COP.3PL knit(IMPF)-ADJ-FEM.PL by side my grandma  
 ‘These socks were knitted by my grandma.’

- c. Moji drugar-i i ja gradi-**mo** splav.  
 my friends-NOM.MASC.PL and I build(IMPF)-**1PL** raft  
 ‘My friends and I are building a raft.’

The agreement pattern exhibited by SC passive participles is by no means unique; in fact, it is pervasive among Indo-European languages that have agreeing adjectives (Emonds 2006 for French and German, Schoorlemmer 1995 for Russian). Emonds (2006) makes a particularly interesting observation: in German, where attributive (but not predicative) adjectives share the  $\phi$ -features of their head nouns, both resultative and eventive participles show concord only in the attributive context (cf. (15b), which shows  $\phi$ -feature concord on an eventive participle). This suggests that German eventive participles also have an adjectival layer, contrary to what has been claimed in the literature.

In SC, both eventive and resultative participles show the same restriction as adjectives: their definite forms, which are generally allowed in attributive position, are disallowed in predicative position (22a–b). The reasons for this restriction need not concern us here (but see, e.g., Aljović 2000). What is important is that this diagnostic again aligns all passive participles with adjectives (22c) and not with verbs, as SC verbs (finite and nonfinite) do not have a definiteness contrast.

- (22) a. Gelender je maza-n / \*maza-n-i bojom od . . .  
 railing COP.3SG coat-ADJ(INDF) / coat-ADJ-DEF paint by  
 ‘The railing was being coated with paint by . . .’  
 b. Peškir se činio nedavno osuše-n / \*osuše-n-i.  
 towel SE seemed recently dry.V-ADJ(INDF) / dry.V-ADJ-DEF  
 ‘The towel seemed recently dried.’  
 c. Ovaj dečak je tuža-n / \*tuž-n-i.  
 this boy COP.3SG sad-ADJ(INDF) / sad-ADJ-DEF  
 ‘This boy is sad.’

Furthermore, both eventive and resultative participles can undergo comparison, and both form the superlative with the prefix *naj-*, as in (23a–b). This makes both of them like adjectives (23c), but unlike finite verbs, which may only express superlativity with the adverb *najviše* ‘the most’ (23d). A somewhat similar effect is found in English, reflected in the position of the modifier ‘the most’ in the translations of (23a–c) vs. (23d).

- (23) a. Ova aplikacij-a je naj-korišćen-ij-a od strane moje ćerke.  
 this app-FEM.SG COP.3SG SUP-used(IMPF)-CMPR-FEM.SG by side my daughter  
 ‘This app is (the) most used by my daughter.’  
 b. Njene oči su mi se činile naj-na-šminkan-ij-e (od svih).  
 her eye.FEM.PL COP.3SG me SE seemed SUP-PF-made.up-CMPR-FEM.PL of all  
 ‘Her eyes seemed (the) most made-up (of all).’  
 c. Ova devojčica je naj-opasn-ij-a.  
 this girl.FEM.SG COP.3SG SUP-dangerous-CMPR-FEM.SG  
 ‘This girl is the most dangerous.’

- d. Moja ćerka najviše korist-i / \*naj-korist-i ovu aplikaciju.  
 my daughter the.most use-3SG / SUP-use-3SG this app  
 ‘My daughter uses this app (the) most.’

In this section, the focus has been on highlighting the adjectival properties of passive participles. However, despite having the external morphology and syntax of adjectives, passive participles undeniably have at least some underlying verbal structure, which I examine next. In section 5.1, I consider the internal structure and interpretation of SC eventive and resultative participles. Whereas both types of participles contain a verbalizing morpheme, I show that the presence of the perfective aspectual layer is required to derive the resultative (and the bounded eventive) passive participle. I argue that this is because the perfective denotes a relation between an event and its completion. In section 5.2, I examine the eventive/resultative contrast in English. I argue that the resultative in English is derived by means of a stativizer that selects for a vP complement. Despite recent claims that English adjectival passive participles may appear with agentive *by*-phrases, I show that none of these are resultative participles.

## 5 Inside the Passive Participle in SC and Beyond

### 5.1 Eventivity and Resultativity in SC, and the Role of Aspect

Let us now focus on the verbal properties of SC participles. Recall the claim in the discussion of (18) that the vowel found between the stem and the adjectival suffix with passive participles behaves differently than the epenthetic vowel found with pure adjectives: namely, its presence is not dependent on the phonological properties of the participle. To determine the role of this vowel, let us look at some verbs and their corresponding passive participles (24). As usual, the hyphens indicate suggested morpheme boundaries.

- (24) a. gled-a-ti ‘watch’      gled-a-n ‘watched’  
 b. šut-nu-ti ‘kick’      šut-nu-t ‘kicked’  
 c. vol-e-ti ‘love’      volj-e-n ‘loved’  
 d. uč-i-ti ‘teach’      uč-e-n ‘taught’  
 e. pas-Ø-ti ‘graze’      pas-e-n ‘grazed’

The infinitival forms of the verbs in (24) consist of a root, a theme vowel, and the infinitival suffix. Theme vowels in Indo-European languages have traditionally been used to divide verbs into classes. Although the theme vowel may vary across the paradigm of a single verb (present tense forms being notoriously irregular), we can predict the theme vowel of the participial form on the basis of a verb’s membership in one of the five conjugation classes in (24). What we observe in (24) is that, when going from the infinitive to the participle, the theme vowel remains the same for (24a) and (24b), while it changes systematically to *-e* for the classes in (24c–e).<sup>13</sup> This kind of systematicity is crucial, considering the fact that verbal theme vowels are not found with other (root-derived) categories. Given that Slavic theme vowels attach to clearly nonverbal

<sup>13</sup> Alternatively, (24c–e) are derived by adding the independently attested adjectival suffix *-en* to the verbal stem (see Simonović and Arsenijević 2020), and the verbal theme vowel is deleted because it is followed by a vowel-initial morpheme (Jakobson 1948).

forms to produce verbs (e.g., *crven* ‘red’/ *crven-i-ti* ‘make red’, lit. ‘red-V-INF’) and given the observation that these vowels may signal argument structure changes in verbs (e.g., *crven-i-ti* ‘make red’ vs. *crven-e-ti* ‘become red’), they have been argued to be exponents of the verbalizing head, *v* (Svenonius 2004, Caha and Ziková 2016, Biskup 2019).<sup>14</sup> I take the presence of the theme vowel to indicate that all passive participles in SC contain *v*, which is associated with verbalization and eventivity (e.g., Harley 1995, Anagnostopoulou 2003, Embick 2004, Alexiadou and Anagnostopoulou 2008).<sup>15</sup>

In addition to obligatorily containing *v*, all SC passive participles encode grammatical aspect in the same way as verbs (25a–b). The majority of SC verbs (and Slavic verbs, more generally) are interpreted as imperfective in their base form, and perfectivity is most commonly encoded with the addition of prefixes. The exact contribution of grammatical aspect in Slavic verbs is a controversial issue (see, e.g., Brecht 1984, Smith 1991, Klein 1995, Schoorlemmer 1995, Babko-Malaya 1999, 2003, Verkuyl 1999, Bertinetto 2001, Borik 2002, Filip 2003, 2005, Ramchand 2004, Romanova 2004, 2007, Svenonius 2004, Arsenijević 2006, Tatevosov 2008, 2011, 2014, 2015, Łazarczyk 2010, de Swart 2012). I will adopt one prominent view on which the perfective form, but not the imperfective form, marks the situation as temporally bounded.<sup>16</sup> In (25), this distinction is illustrated for participles using the material in parentheses. In (25a) with the imperfective participle, the speaker makes no commitment as to whether the painting process was (or is) completed. On the other hand, (25b) with the perfective participle asserts that the process is completed, making the material in parentheses deviant.

- (25) a. Kupol-a je pažljivo slik-a-n-a od strane  
 dome-NOM.FEM.SG COP.3SG carefully painted(IMPF)-V-ADJ-NOM.FEM.SG by side  
 talentovanih umetnika (ali ni-je završena).  
 talented artists but not-COP.3SG finished  
 ‘The dome was being carefully painted by (the) talented artists (but it wasn’t completed).’

<sup>14</sup> Ora Matushansky (pers. comm.) suggests that treating Slavic theme markers as verbalizers across the board may not be a good idea for various reasons, most generally because they do not all pattern alike. For instance, the theme *-nu-* in (24b) makes a semantic contribution (perfectivity), unlike the other theme vowels. Even so, the specific thematic vowels found with verbs seem to be involved only when there is other evidence for verbal structure (e.g., in eventive nominalizations). It is not crucial for my purposes whether the theme vowels are exponents of *v*, or whether they are inserted as a result of some morphological well-formedness rule that applies to *v*, as in Oltra-Massuet 1999. Although I will continue to represent the theme vowel in *v* for convenience, it is sufficient for present purposes to assume that verbal thematic vowels diagnose the presence of *v* in the structure.

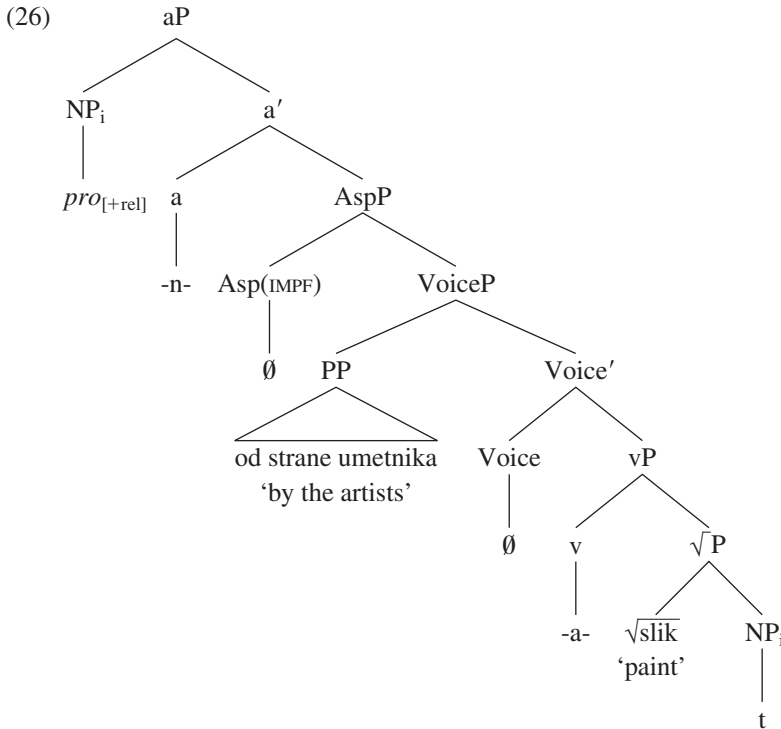
<sup>15</sup> There is a whole host of pairs consisting of a pure adjective and a passive participle that differ only in the vowel that intervenes between the root and the adjectival suffix. Some examples are *siromašan* ‘poor’–*siromašen* ‘made poor’, *umoran* ‘tired’–*umoren* ‘made tired’, *zadovoljan* ‘content’–*zadovoljen* ‘made content’. As already discussed, the so-called theme vowel on the participle is always present, whereas the epenthetic vowel of the simple adjective disappears when the right conditions are met. The presence/absence of eventivity in the above examples corresponds to the presence/absence of the verbal theme vowel, additionally suggesting that the theme vowel diagnoses the presence of *v*.

<sup>16</sup> This need not mean that the situation has reached its natural end, only that it is delimited in time (see Borik 2002 for an analysis that distinguishes between telicity and perfectivity in Russian). That said, SC transitive perfective verbs are always telic. The only exception to my knowledge is the perfective verb *po-tražiti* ‘PF-search’. This is relevant because resultative participles can be derived only from telic VPs, in SC, but also in English and in other languages (e.g., \**The house seems painted for a long time*). Unlike SC, Russian has a productive delimitative prefix *po-*, which marks the verb it attaches to as perfective but not telic. Verb stems that contain the delimitative prefix *po-* cannot be used to derive resultative participles.



- b. Kupol-a je pažljivo o-slik-a-n-a od strane  
 dome-NOM.FEM.SG COP.3SG carefully PF-paint-V-ADJ-NOM.FEM.SG by side  
 talentovanih umetnika (#ali ni-je završena).  
 talented artists but not-COP.3SG finished  
 ‘The dome is/was carefully painted by (the) talented artists (# but it wasn’t completed).’

In (26), I synthesize what has been said about the individual pieces of morphology that make up the eventive participle in (25a). The acategorial root  $\sqrt{\text{slik}}$  ‘paint’ is verbalized, and VoiceP attaches above the verbalizing head, introducing the external argument (Kratzer 1996). I return to the status of the internal argument of the root immediately below. I assume that dedicated aspectual projections host aspectual features, and that they are to be found above the projection that introduces the agent (e.g., Schoorlemmer 1995, Ramchand 2004, Svenonius 2004, Pazelskaya and Tatevosov 2008, Tatevosov 2008, Łazorczyk 2010).<sup>17</sup> Finally, the structure is adjectivized.<sup>18</sup>



<sup>17</sup> One may question the utility of the aspectual projection in (26), since no overt material is associated with it. Eventive participles *can* nonetheless contain overt aspectual affixes: for example, the secondary imperfective *o-slika-va-na* ‘painted.sr’, derived from the perfective participle *o-slikana* ‘PF-painted’ with the addition of the imperfective morpheme *-va-*. One question I leave open is whether the interpretation of the base imperfective in (26) is derived by assigning imperfective semantics to the empty Asp head, or whether this form is underspecified for aspectual features, with the imperfective being a default rule of interpretation.

<sup>18</sup> I remain agnostic as to whether there may be an additional projection on top of aP that hosts  $\phi$ -features (gender, number, and case) obtained through concord with the noun.

Semantically, the resulting aP should be a predicate that is true or false of the Theme argument. To achieve this, we may treat the adjectivized structure in the same way relative clauses are treated by Heim and Kratzer (1998), among others. As illustrated in (26), a silent NP ( $pro_{[+rel]}$ ) merges as the complement of the root; it then moves to the specifier of the adjectivizing head, where it is interpreted as  $\lambda$ -abstraction over the variable that interprets its trace. This yields the denotation in (27), where  $a$  stands for the artists. The denotation of the imperfective in (27) can be understood as a placeholder for whatever the precise representation of incompleteness may turn out to be.

(27)  $\lambda y \lambda e. T \text{ iff } painting(e) \ \& \ Theme(e, y) \ \& \ Agent(e, a) \ \& \ Incomplete(e)$

Note that the LF in (27) is applicable to both predicative and attributive participles. When the participle is used predicatively, a higher functional head Pred(icative) introduces the clausal subject, as I discuss below. When the participle is NP-adjoined, the resulting phrase is interpreted as the intersection of the set denoted by the noun and the set denoted by the participle.

Note also that (27) makes no reference to states. This distinguishes it from analyses explicitly given in Meltzer-Asscher 2011b and Gehrke 2015, but also implicitly assumed in much other work on adjectival passives, where adjectivization creates a predicate that is always true of states. Abandoning this view is necessary since SC eventive passive participles unambiguously belong to the category of adjectives. If the goal is to have a generalizable semantics for lexical categorizers crosslinguistically, then the adjectival head should not itself encode stativity. The stative component of resultative participles (and root-derived adjectives) needs to come from a different source.

Before moving forward, I should clarify the use of aspectual affixes as exponents of Asp. Slavic aspectual affixes have been argued to belong to at least two subclasses, lexical and superlexical (see, e.g., Svenonius 2004), both of which are available with passive participles. Most authors assume that at least lexical affixes are base-generated inside the vP, but the received wisdom is either (a) that they move to the position indicated in (26) because, as operators over an event variable, they must take scope over this variable (e.g., Svenonius 2004), or (b) that they stay in their original position, but force a particular value on the aspectual head (e.g., Ramchand 2004). Some authors even argue that all “aspectual” affixes are, in fact, resultative affixes found within vP (Arsenijević 2006, Tatevosov 2011, 2015). Regardless of this, there are diagnostics that are sensitive particularly to the perfective/imperfective distinction (Borik 2002). One such diagnostic is the ability to appear as a complement of a phasal verb (‘start’, ‘continue’, ‘end’, etc.). As expected, only imperfective participles can appear in this position (28). For the sake of simplicity, I represent all aspectual affixes in AspP. What matters for present purposes is the position and value of the aspectual projection, rather than the exact position of the affixes.

(28) Kupola je počela da bude (\*o)-slikana prošle nedelje.  
 dome COP.3G started DA be PF-painted past week  
 ‘The dome started being painted last week.’

Let us now focus on the perfective participle in (25b). This participle is ambiguous between the resultative and the bounded eventive reading, and the modifiers in (29) help disambiguate between the two. Both constructions in (29) involve the same form of the copula and the same

form of the participle. However, the resultative in (29a) denotes a present state resulting from a prior event, whereas the eventive in (29b) denotes a past completed event. Additionally, only the resultative reading is possible when the participle is the complement of *činiti se* ‘seem’ (30)—since *činiti se* is marked for present tense, this sentence cannot be uttered if the dome is no longer painted.

- (29) a. Kupola je sada zauvek o-slikana od strane (ovih) talentovanih umetnika.  
 dome COP.3SG now forever PF-painted by side these talented artists  
 Lit. ‘The dome is now forever painted by (these) talented artists.’
- b. Kupola je juče o-slikana od strane (ovih) talentovanih umetnika.  
 dome COP.3SG yesterday PF-painted by side these talented artists  
 ‘The dome was painted by (these) talented artists yesterday.’
- (30) Kupola mi se čini o-slikana od strane (ovih) umetnika.  
 dome me SE seems PF-painted by side these artists  
 Lit. ‘The dome seems to me painted by (these) artists.’

I will argue that the perfective participles in (29) are identical and that a higher functional head (Pred) is responsible for their distinct interpretations. However, let us set aside this difference for now and focus on the resultative participle. We have seen that both SC and English eventive participles allow agentive *by*-phrases, suggesting they project an external argument. As illustrated by (2), (25b), (29a), and (30), SC resultative participles are also compatible with agentive *by*-phrases. In addition to appearing with complements of verbs like *činiti se* ‘seem’, which require stative complements, agentive *by*-phrases in SC may occur in other typical stative contexts—for example, when the perfective participle is a superlative (31) (also (23a)). The interpretation of these participles is stative, and the *by*-phrase names the agent of the event that brought about the state. As the translations show, this is impossible in English.

- (31) Jovana je od strane policije naj-obavešten-ij-a od svih mojih  
 Jovana COP.3SG by side police SUP-informed(PF)-CMPR-FEM.SG of all my  
 komšinica.  
 neighbors  
 Lit. ‘Jovana is the most informed of all my neighbors by the police.’

This crosslinguistic variation has already been discussed by Anagnostopoulou (2003) and Alexiadou, Gehrke, and Schäfer (2014) for Greek, which also allows agentive *by*-phrases with resultative participles (see also Alexiadou, Anagnostopoulou, and Schäfer 2015). Comparing Greek with German (which patterns with English), Alexiadou, Gehrke, and Schäfer claim that the presence of an aspectual projection in the syntax of Greek participles is responsible for the availability of *by*-phrases with resultatives. They follow Gehrke (2011, 2013, 2015) in claiming that the observed crosslinguistic variation arises from the fact that verb stems (vPs) that notionally name events are semantically predicates, not of events, but of event kinds. Event kinds are abstract. They do not have locations, times, or participants, unlike the concrete events that realize them. A predicate centered on such a verb stem cannot include thematic or spatiotemporal modifiers,

unless it also includes verbal functional structure to introduce a relation of realization between an event and the kind that it names. Resultative participles in English and German, the argument goes, are not directly embedded under such functional structure, but must first be adjectivized. By stipulation, this intervening adjectival projection existentially binds the event argument of the predicate and prevents the event kind associated with the verb from being instantiated. NPs naming participants in the event, such as those in *by*-phrases, cannot be used to name actual event participants since there is no actual event to begin with. In Greek (and SC, by analogy), the additional aspectual structure below the adjectivizing layer is presumably sufficient to instantiate the event kind, and this is why naming the agent of the event is permissible even with resultative participles.

My main objection to this analysis concerns the role of grammatical aspect in the formation of Greek (and SC) resultative participles. An important point that this approach misses is that it is not sufficient for a verb to encode aspectual information for it to be compatible with agentive *by*-phrases in stative contexts, or even with stative contexts as such; rather, it must specifically encode perfect(ive) aspect. Whereas Greek verb stems *do* encode aspectual distinctions, the relevant participle is always derived from the perfect stem.<sup>19</sup> Greek has a synthetic eventive passive; it does not use participles for this purpose. What sets SC apart is that the perfective participle patterns with Greek (30), whereas the imperfective is generally incompatible with stative contexts, with or without the *by*-phrase (32). We can therefore trace the crosslinguistic variation in the availability of *by*-phrases with resultatives to the presence/absence of a *particular kind* of grammatical aspectual information with a reasonable degree of certainty.

- (32) \*Ova vaza se čini lomljena (od strane nestašnih patuljaka).  
 this vase SE seems broken(IMPF) by side mischievous dwarfs  
 Lit. 'This vase seems being broken by the mischievous dwarfs.'

In fact, even participles derived from SC secondary imperfective verbs are incompatible with stative contexts (33). The ungrammaticality of (33) suggests that aspectual interpretation, rather than the amount of aspectual structure, determines the participles' compatibility with verbs like *činiti se* 'seem'.<sup>20</sup>

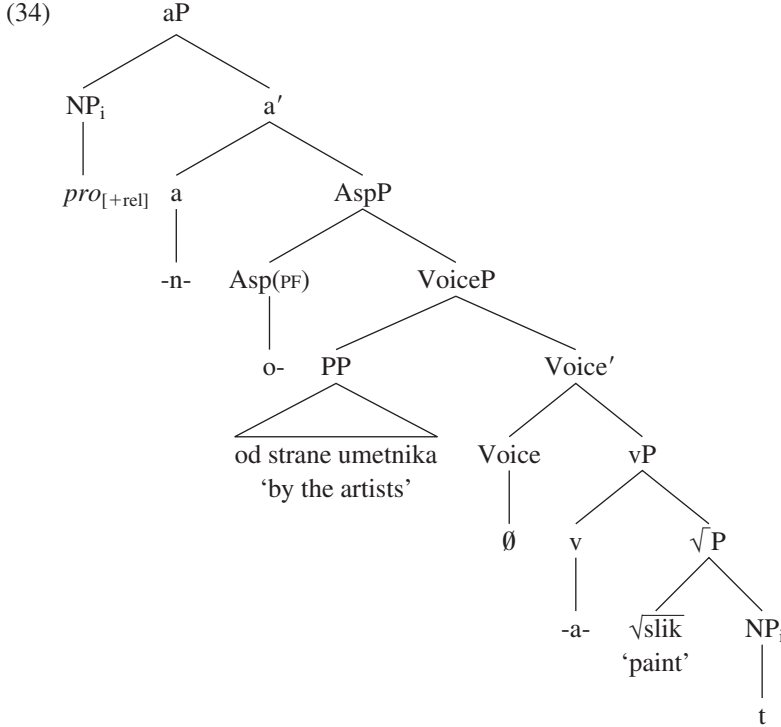
- (33) \*Ova kupola se čini o-slik-a-va-n-a (od strane talentovanih umetnika).  
 this dome SE seems (PF)-paint-V-SI-ADJ-FEM.SG by side talented artists  
 Lit. 'This dome seems being painted (by the talented artists).'

Explaining why agentive *by*-phrases are available with resultative participles in SC-like languages is a two-step process. First, recall that grammatical aspect enters the derivation *after* all of the verb's arguments have been introduced. Using the participle *oslikan* 'painted' in (29),

<sup>19</sup> A salient property of the Greek *perfect* (and of the SC perfective) is the notion of completion; see Moser 2003.

<sup>20</sup> Secondary imperfectives in SC may have either a durative or a repetitive reading. (33) is interesting because it is unacceptable if interpreted as progressive, and it improves if interpreted as habitual. Intuitively, this makes sense: the durative interpretation is the same as with base imperfectives, whereas with the repetitive reading the event is completed several times, and thus more like the perfective. I will have to leave the question of how, if at all, these differences are encoded in the syntax for future research.

I present the structure for perfective participles in (34). Let us further assume that the perfective aspect denotes a two-place relation between an event and the state of its completion (35a). Combining this with the above discussion regarding eventive participles and the adjectivization operation, I give the denotation for the perfective participle in (35b).



(35) a.  $\lambda P\lambda e\lambda s. T \text{ iff } \llbracket \text{VoiceP} \rrbracket(e) \ \& \ \text{Compl}(e, s)$

b.  $\lambda y\lambda e\lambda s. T \text{ iff } \text{breaking}(e) \ \& \ \text{Agent}(e, a) \ \& \ \text{Theme}(e, y) \ \& \ \text{Compl}(e, s)$

Note that both the event and the state variable in (35b) are available for further modification. This is desirable because, as we have seen, the perfective participle may have both bounded eventive and resultative interpretations. In both cases, we want the participle to contain an eventive and a stative component; however, their compatibility with different types of adverbs in (29) suggests that the eventive component is more “salient” in the bounded eventive passive, whereas the stative component is more “salient” with the resultative passive.<sup>21</sup>

<sup>21</sup> We have already seen that the SC resultative participle also allows event modification, both by manner adverbs and by agentive *by*-phrases (i). This is expected on my analysis since event modifiers and agentive phrases enter the syntactic derivation before the perfective layer introduces the result state. The participle in (i) still refers to a state, but one that came about through a violent event carried out by the hooligans.

(i) Prozor je ostao nasilno iz-lomljen od strane huligana.  
 window COP.3SG remained violently PF-broken by side hooligans  
 Lit. ‘The window remained violently broken by the hooligans.’

How may we formally implement this intuition? I would like to suggest that the two participles are selected by distinct Pred heads (see, e.g., Adger and Ramchand 2003, Roy 2005). Both Preds introduce an argument that saturates the variable  $y$  of the predicate in (35b) (*kupola* ‘dome’ in (29)). Additionally, Pred<sub>1</sub>, call it *State Promotion*, existentially binds the event argument of the participial predicate and returns a predicate of states, yielding the resultative interpretation (36a). Applying State Promotion to the resultative participle in (29a), we get the LF in (36b), where  $a$  stands for ‘artist’ and  $d$  stands for ‘dome’. Conversely, Pred<sub>2</sub>, call it *State Closure*, existentially binds the state variable introduced by the perfective and yields a predicate of completed events (37a). The LF in (37b) gives the interpretation for the bounded eventive construction in (29b).<sup>22</sup>

- (36) a. StatePromotion(Q) =  $\lambda s \exists e. T \text{ iff } Q(e)(s)$   
 b. StatePromotion( $\llbracket \text{aP} \rrbracket$ ) =  
 $\lambda s \exists e. T \text{ iff } \textit{painting}(e) \ \& \ \textit{Theme}(e, d) \ \& \ \textit{Agent}(e, a) \ \& \ \textit{Compl}(e, s)$
- (37) a. StateClosure(Q) =  $\lambda e \exists s. T \text{ iff } Q(e)(s)$   
 b. StateClosure( $\llbracket \text{aP} \rrbracket$ ) =  
 $\lambda e \exists s. T \text{ iff } \textit{breaking}(e) \ \& \ \textit{Theme}(e, d) \ \& \ \textit{Agent}(e, a) \ \& \ \textit{Compl}(e, s)$

Since the proposed Pred heads are homonyms in (29), one may be skeptical that they are distinct elements. However, there is some independent evidence from their interaction with Tense that the two Preds are, in fact, different.<sup>23</sup> When *je* ‘PRED’ appears with root-derived adjectives, which can only have a stative reading, it refers to present states (38a), as was the case for the resultative passive in (29a). However, with active participles, which can only have an eventive reading, it refers to past events (38b), as was the case for the perfect passive construction (29b). Furthermore, if we use the past of *je* ‘PRED’, the sentence with a root-derived adjective refers to a past state (38c). On the other hand, the same form with the active participle can only have the pluperfect reading, and (38d) is actually rejected by some (particularly younger) speakers, who instead just use *je* ‘PRED’ and adverbs such as *več* ‘already’ to signal the pluperfect interpretation. Crucially, the resultative passive participle patterns with root-derived adjectives in this respect, while the perfect passive participle patterns with active participles (38e–f).

- (38) a. Dunja je lepa.  
 Dunja COP.3SG beautiful  
 ‘Dunja is beautiful.’

<sup>22</sup> It is worth pointing out here that the appeal to distinct Pred heads is not sufficient to salvage analyses that assume a categorial contrast between the different participles. Such a move would still fall short of explaining the adjectival morphosyntax of all passive participles.

<sup>23</sup> See Biskup 2019 for evidence that supports the existence of two verbs ‘be’ in Czech; see also Salzmann and Schaden 2019, which accounts for the difference in the interpretation of eventive and stative participial constructions in Alemannic in terms of the different semantics of the verbs that introduce them.

- b. Dunja je (u)-radila domaći.  
Dunja COP.3SG PF-done homework  
'Dunja was doing/has done her homework.'
- c. Dunja je bila lepa.  
Dunja COP.3SG was beautiful  
'Dunja was beautiful.'
- d. %Dunja je bila (u)-radila domaći u ponedeljak.  
Dunja COP.3SG was PF-done homework on Monday  
'Dunja had done/been doing her homework on Monday.'
- e. Kupola je dugo bila o-slikana (od strane . . . )  
dome COP.3SG long was PF-painted by side  
Lit. 'The dome was painted (by . . . ) for a long time.'
- f. %Kupola je brzo bila o-slikana (od strane . . . )  
dome COP.3SG quickly was PF-painted by side  
'The dome had been quickly painted (by . . . ).'

We have seen that eventive and resultative passive participles in SC have distinct aspectual properties. I have also shown that the presence of the perfective is crucial in the derivation of resultatives in SC-like languages. I now examine the eventive/resultative dichotomy in English more closely.

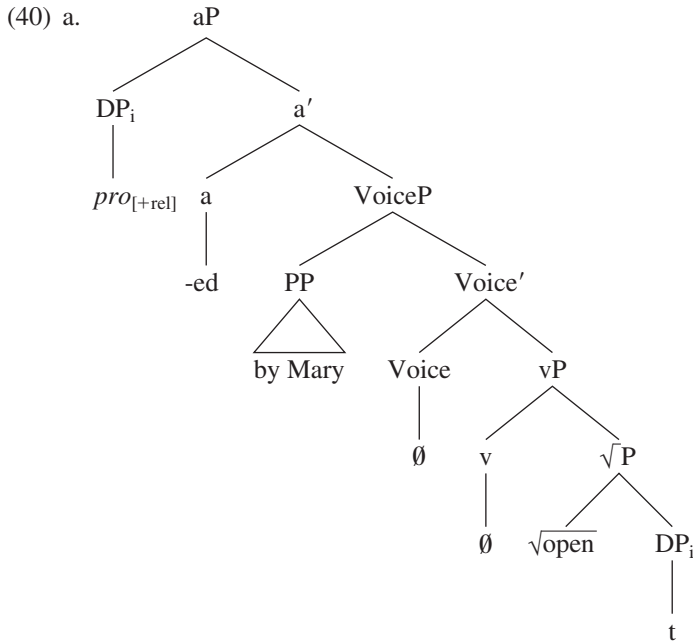
## 5.2 *Passive Participles in English-Like Languages*

While explaining the SC and Greek facts, the analysis in section 5.1 cannot account for how resultative participles are derived in a language like English. Since English does not mark grammatical aspect on participles, there has to be another way for it to derive the meaning in (39a): namely, that the documents remained in the resulting state of having been carefully alphabetized. How does this participle differ from its eventive counterpart in (39b)?

- (39) a. The documents remained carefully alphabetized.  
b. The documents were carefully alphabetized by Mary.

Considering first the English eventive participle, its structure in (39b) is the same as that of its SC counterpart in all crucial aspects; it contains verbal structure (v and Voice) and the adjectivizing layer (40a). It differs in not having aspectual projections. The meaning of the English eventive participle is almost identical to that of its SC counterpart: it is a predicate of events, and it is true or false of the Theme argument. Note that English eventive passive participles can correspond to both SC imperfective (unbounded eventive) participles (e.g., *Sculptures were made on the beach (for two hours)*) and SC perfective (bounded eventive) participles (*A sculpture was made on the beach (in two hours)*). In terms of its semantic import (namely, boundedness), the telicity of the VP in English plays roughly the role that grammatical aspect plays in SC. Since this article is about SC primarily, I will not engage in a detailed analysis of telicity here.





b.  $\lambda y\lambda e. T \text{ iff } \textit{painting}(e) \ \& \ \textit{Theme}(e, y) \ \& \ \textit{Agent}(e, m)$

Turning to the English resultative participle, let us first look at its interaction with agentive *by*-phrases. Even though early accounts claimed that “adjectival” (resultative and purely stative) participles in English-like languages lack implicit initiators altogether (e.g., Kratzer 2000, Anagnostopoulou 2003, Embick 2004), a number of more recent works have argued that “adjectival” participles in these languages do in fact allow external argument *by*-phrases (McIntyre 2013, Alexiadou, Gehrke, and Schäfer 2014, Bruening 2014). Importantly, the authors of these works claim that “adjectival” participles (can) therefore include VoiceP. However, we already know that *by*-phrases used to name causes of states are generally allowed in resultative contexts.<sup>24</sup> Further, given the conclusion (based on SC data) that adjectivization does not equal stativization, I will argue that a dedicated stativizer needs to be assumed for English resultative participles. Therefore, the presence of state-related *by*-phrases can easily be associated with this projection, and not with VoiceP, which is related to the event. The goal, then, will be to determine whether English resultative participles ever allow event-related *by*-phrases. I take up this task in the rest of this section, and show that the answer is negative. Indeed, even authors who claim that “adjectival” participles allow overt external arguments acknowledge the unacceptability of sentences like (41a). McIntyre (2013:31) suggests that there is interspeaker variation in the acceptability of (41b), but the *by*-phrases are always construed as state-related. In other words, the underlying

<sup>24</sup> I use *cause* here in the sense of Lewis’s (1974) counterfactual analysis of causation. In the words of Hume, “If the first object had not been, the second never had existed.” This does not presuppose any kind of “action” on the part of the “first object.”

agent must be identifiable from the resulting state for the *by*-phrase to be licensed. As discussed in section 3, this kind of *by*-phrase is generally acceptable with resultative participles, and it does not necessarily require the presence of Voice.

- (41) a. \*The door seemed broken/opened/painted by Mary.  
 b. %The text seems written by a genius/foreigner/ghostwriter.

Moreover, works that argue for the presence of Voice with English “adjectival” passives still often use verbs that are ambiguous between an eventive and a stative interpretation even in their active form, as in (42), taken from McIntyre 2013:31. Particularly telling in this respect is (42b), which is acceptable when the *by*-phrase names an inanimate cause, but not when it names an animate agent. As (43) illustrates, the animate *flatter* is compatible with the progressive aspect, and therefore eventive, while the inanimate *flatter* is stative. Importantly for our purposes, these stative participles will naturally have state-related external arguments. The LF for *blocked by police* (42a) is given in (44), where *p* stands for *police* and *y* will evaluate to the road.

- (42) a. The road remained blocked by police/supported by pylons.  
 b. Edeltraud seemed flattered by the report/??the journalist.  
 (43) a. \*The report was flattering Edeltraud all day.  
 b. The journalist was flattering Edeltraud all day.

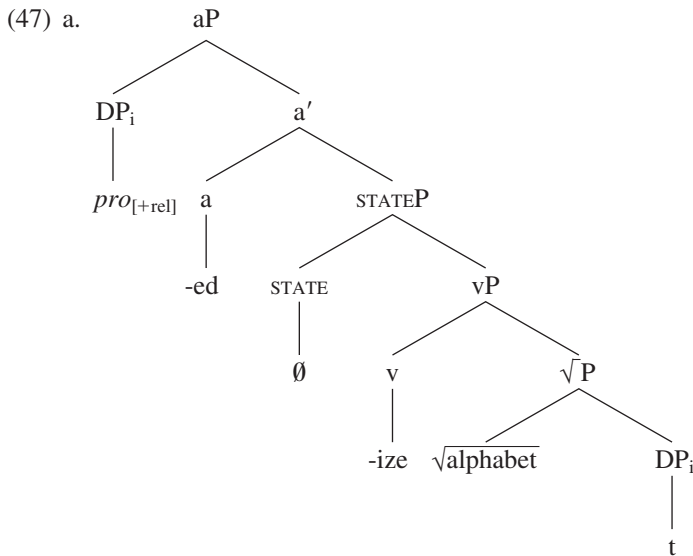
- (44)  $\lambda y \exists s. T \text{ iff } \textit{block}(s) \ \& \ \textit{Theme}(s, y) \ \& \ \textit{Cause}(s, p)$

The only other type of example that is commonly used to make the claim that “adjectival” participles contain a VoiceP is illustrated in (45), from Bruening 2014:379–380. What the participles in these sentences have in common is that they are prefixed by negative *un-*. Note that (45a–b) seem to be derived from stative (psychological) predicates, so the acceptability of *by*-phrases there may receive the same explanation as that given for the *by*-phrases in (42). Nonetheless, in (45c–d) the participles that serve as input to *un-* prefixation are true eventive verbs. I would like to suggest that the only difference between these participles and their eventive counterparts (cf. (40)) is that the prefix *un-* adds a negative component. Specifically, it negates the existence of the event. I illustrate this in (46) for the participle in (45c); *c* stands for *TX congressman* and *y* will evaluate to millions. Here, as in the previous case, there is no state resulting from an event; rather, negation is applied directly to the event. This means that the participles in (45c–d) are not resultative in the relevant sense. Rather, they are derived in the same way as regular eventive participles, and thus allow agentive *by*-phrases to the same degree.

- (45) a. Biden’s optimism undisturbed by Iraqi bombs (headline)  
 b. Toddler unfazed by lion encounter (headline)  
 c. Millions undisclosed by TX congressman (headline)  
 d. Steve Jobs’ birthday doesn’t go unnoticed by spammers.

- (46)  $\lambda y \neg \exists e. T \text{ iff } \textit{disclosing}(e) \ \& \ \textit{Theme}(e, y) \ \& \ \textit{Agent}(e, c)$

What we have seen so far is that, besides with uncontroversially eventive participles discussed earlier, event-related *by*-phrases in English may appear only with participles prefixed by negative *un-*. These participles do not denote a state resulting from a prior event; rather, they denote the absence of the event denoted by the predicate. Coupled with the unacceptability of (41a), I take this to suggest that resultative participles in English are truly incompatible with event-related *by*-phrases. Nonetheless, we still need to be able to derive participles such as the one in (39a), where the Theme is in a state resulting from an event. We will need to assume a phonologically null stativizer, STATE, which crucially selects for vP (rather than VoiceP, as was the case for the perfective in SC-like languages). This is illustrated in (47a), which is in line with proposals in Kratzer 2000, Embick 2004, and McIntyre 2013, among others (contra Alexiadou, Gehrke, and Schäfer 2014, Bruening 2014). Like the perfective, STATE introduces a state component, as well as a causal relation between the event and the state, as shown in (47b). It existentially binds the event variable, making it unavailable for further modification. Applying the adjectivizer, we get the LF in (47c).



b.  $\lambda P \lambda \exists e. T \text{ iff } \llbracket vP \rrbracket(e) \ \& \ \text{Cause}(s, e)$

c.  $\lambda y \lambda s \exists e. T \text{ iff } \text{alphabetized}(e) \ \& \ \text{alphabetized}(s) \ \& \ \text{Theme}(e, y) \ \& \ \text{Cause}(s, e)$

Summing up, this section has shown that eventive and resultative passive participles must differ in terms of the verbal structure they embed below the adjectival layer. The stative component of resultative participles is derived differently in the two different classes of languages. In languages like SC, which encode grammatical aspect on the verb stem, perfective viewpoint aspect is a prerequisite for the derivation of passive participles that involve completed events, namely, the bounded eventive and the resultative. I argued that this is because the perfective denotes a relation between an event and its completion. Since resultative participles in SC-like languages are perfective, they must already include more verbal structure than, for example, English resulta-

tives, which include vP (not VoiceP and not AspP). Furthermore, since SC resultatives include Asp, the presence of lower portions of the verbal structure (including VoiceP) follows. In fact, something additional would need to be said to prevent VoiceP (and hence agentive *by*-phrases) in their structure.

## 6 Conclusion

This article has challenged the long-held assumption that passive participles fall into two subclasses—adjectival and verbal—that belong to distinct lexical categories. I showed that the diagnostics that have been proposed to zero in on the differences between adjectival and verbal participles in English do not in fact test for category differences. I provided evidence that all SC passive participles unambiguously belong to the category of adjectives, but that stative and eventive participles must nonetheless be structurally different, only in terms of the verbal structure they embed under the adjectival layer. I have shown that this analysis of passive participles may be viable for a number of languages—in particular, English, German, and Greek.

I then argued that the result state component of resultative participles is introduced differently in two types of languages, namely, languages that morphologically encode aspect on verb stems and those that do not. While the result state component in the former languages is introduced by Asp (which attaches above VoiceP), the latter languages have a dedicated stativizing morpheme that selects for vP complements. This accounts for the fact that only the former languages allow agentive modifiers with resultative participles. The conclusions reached here also predict that there may be languages that do *not* encode aspect on participles, but still allow resultative participles to combine with agentive *by*-phrases. This would be the result of the stativizing morpheme attaching above VoiceP. One such language seems to be K'iche' (Mayan), as I show in (48); see Duncan 2016 for arguments that the *Vnāq* form is adjectival. The adjectival participle in (48) does not encode aspect, yet the agentive *by*-phrase headed by the relational noun *-umal* is licit.<sup>25</sup>

- (48) . . . Ixk'at tij-taj-ināq      chi      le      aj      r-umal.  
 Ixk'at eat-PASS-ADJ.RES already DET elote A3SG-RN  
 Lit. 'The elote is already eaten by Ixk'at.'

The prevalent assumption that eventive and resultative participles differ in category is, first, insufficient to explain the differences between these two types of participles on its own, and, second, incompatible with the morphosyntactic findings from SC. Most crucially, it is unnecessary if we adopt the analysis developed here. Even if one is not convinced by my analysis or finds the postulation of phonologically null stativizers in English-like languages dubious, I think it is important to note that, on the analysis that assumes “adjectival” and “verbal” participles, the mere presence/absence of the adjectival layer cannot account for the stative/eventive distinction. Data from SC clearly show that “being an adjective” (i.e., having the adjectival layer as the topmost

<sup>25</sup> The consensus in the Mayan literature is that K'iche' verbs encode Aspect on the verb stem, though these “aspectual” markers are absent on the participle in (48). However, see Bešlin 2021 for arguments that the relevant markers encode Tense, and not Aspect.

structural layer) does not guarantee a stative interpretation, and eventive nominalizations in English (and more broadly) make a similar point.

The central claims of the article—that there are no verbal participles and that the passive participles in the examined languages are deverbal adjectives—raise interesting questions for languages that have been asserted to lack adjectives (e.g., Dixon 1977, though see Dixon 2004) or whose adjective inventories are in the single digits. Do these languages have participles? For languages of the latter type, it is worth noting that a small inventory of root-derived adjectives should in principle not be correlated with the degree to which a language can derive adjectives from other lexical categories. For example, the Mayan language K'iche' has few root-derived adjectives, yet its productive perfect participle has been argued to be a deverbal adjective (Duncan 2016). As for languages of the former type, granting that they exist, it is possible that they use other types of nonverbal predication (e.g., deverbal nominals) or relative clauses instead of participial modifiers, though these are perhaps less likely to be called participles. If it turns out that what have been termed “participles” are crosslinguistically simply adjectives (or nouns) that embed varying amounts of verbal structure, this has the desirable consequence of curbing the proliferation of categories (e.g., PartP in various analyses), both in the linguist's arsenal and in the speaker's mental grammar.

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