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Adjectival Conversion of Unaccusatives in German

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The paper presents an in-depth study of the conditions under which unaccusative verbs in German take part in the formation of so-called ADJECTIVAL PASSIVES. It provides corpus-linguistic as well as psycholinguistic evidence arguing that combinations of *sein* 'to be' with the participle of an unaccusative verb are systematically ambiguous between a present perfect reading (with *sein* as auxiliary) and an adjectival reading (with *sein* as copula). The first part of the paper highlights the adjectival character of the construction in question. The second part presents the results of three rating studies that help unravel the pragmatic conditions that govern the adjectival conversion of unaccusatives. This leads to the conclusion that what has become known as the "adjectival passive" construction is a rather general, broadly available word formation process that is characteristically shaped and controlled by pragmatic factors.*

1. Introduction.

The so-called adjectival or stative passive (*Zustandspassiv*) in German has recently become subject of revived empirical and theoretical interest. Traditionally, the adjectival passive is conceived of as a second passive form in addition to the verbal, or eventive passive (*Vorgangspassiv*) as shown in 1.[1] This perspective is taken by virtually all grammars of German, such as Zifonun et al 1997, Helbig & Buscha 2001, and Duden 2005.

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[1] The German verbal passive is built by combining an *-en*/*-t* participle with the passive auxiliary *werden* 'to become', while the adjectival passive uses *sein* 'to be'. Thus, verbal and adjectival passives are expressed by different forms in German. Contrary to the situation in English, there is no risk of confounding verbal and adjectival passives; see section 2.

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(1) a. Die Tür ist geschlossen. adjectival passive
the door is closed
'The door is closed.'

b. Die Tür wird geschlossen. verbal passive
the door becomes closed
'The door is closed.'

Authors like Rapp (1997, 1998), Kratzer (2000), and Maienborn (2007) have criticized this view, arguing that constructions such as 1a do not contain a passive verbal form at all but involve, instead, adjectival conversion. According to this view, what is traditionally dubbed "adjectival" or "stative passive" actually turns out to be a copula sentence with an adjectivized verbal participle. Current research draws on this view, focusing on the semantics of the adjectival passive and its combinatorial behavior (see, for example, Kratzer 2000; Schlücker 2005; Maienborn 2007, 2009, 2011; Gehrke, to appear).

A question that needs to be addressed under the adjectival conversion approach, and which has not yet received due attention, is which verbs can form adjectival participles. According to the traditional view, adjectival passive formation is a subcase of passivization and as such is reserved for a subset of transitive verbs. Under the adjectival conversion approach this is no longer a natural assumption. A particularly intriguing case in point is the class of unaccusatives, that is, intransitive verbs that form their perfect tense with the perfect auxiliary *sein* 'to be' (see Haider 1985, 2010). For example, the sentence in 2 has, first of all, a present perfect tense analysis. The question is whether it can also receive an adjectival conversion analysis. Can the verbal participle *gestorben* also be adjectivized and then combine with the copula *sein*? In other words, are sentences such as in 2 ambiguous between a present perfect tense and a copula analysis or can they only receive a present perfect reading?

(2) Meine Katze ist gestorben. present perfect and copula reading?
my cat is died

This is the starting point of the present investigation. We provide an in-depth study of the adjectivization of participles formed from intransitive *sein*-verbs, which would eventually lead to a new perspective on the

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grammatical and pragmatic conditions of the so-called adjectival passive formation in German. More specifically, we provide corpus-linguistic evidence showing that participles of intransitive *sein*-verbs are legitimate candidates for adjectivization. This then raises the question to what extent these verbs take part in adjectival conversion. At first glance, this option seems available only for some unaccusatives. For instance, verbs such as *schwellen* 'to swell' lend themselves more readily to adjectivization than, for example, *platzen* 'to burst'. This observation is corroborated by an acceptability rating study that uses durational *seit*-adverbials versus deictic *vor*-adverbials as a diagnostic for disentangling the copula reading from the present perfect reading of an intransitive *sein*-verb. While *schwellen* combines readily with both *seit*- and *vor*-adverbials, *platzen* sounds odd with *seit*, which suggests that it has only a present perfect reading (see 3).

(3) a. Das Bein ist vor/seit zwei Tagen geschwollen.
the leg is before/since two days swollen

b. Der Ballon ist vor/??seit zwei Minuten geplatzt.
the balloon is before/since two minutes burst

Yet, on closer examination it turns out that what determines the availability of a copula reading is not lexical or grammatical factors, but pragmatics. This view is further substantiated by the results of two additional rating studies, in which contextual factors were systematically manipulated. These findings lead us to the conclusion that it would be misleading to exclude some (or even all) unaccusatives from the formation of what is known as the adjectival passive construction. Rather our studies support a new perspective on the grammar/pragmatics interface, according to which the adjectivization of verbal participles is a grammatically fairly unrestricted word formation process that is also open to virtually all intransitive *sein*-verbs and that is characteristically shaped and controlled by pragmatic factors.

This paper is organized as follows. Section 2 first presents a short overview of some facts and assumptions concerning the German adjectival passive construction that constitute the background for the present study. Then it summarizes the traditional arguments in favor of an adjectival conversion analysis. In section 3, the relevant diagnostics are

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applied to unaccusatives. Empirical evidence is provided mainly by corpus data.[2] Section 4 is devoted to the question to what extent unaccusatives take part in the adjectivization of verbal participles and what the governing factors are. The discussion draws on the results of a series of acceptability rating studies. Section 5 concludes the paper by linking our findings on the formation of adjectival passives to a genuinely pragmatic account of their interpretation.

2. On the Adjectival Nature of the Adjectival Passive.

2.1. Preliminaries.

The German adjectival passive differs from its English counterpart in several ways. It is crucial to keep this in mind throughout the paper. Whereas English expresses both verbal and adjectival passives by an *-en/-ed* participle in combination with a form of *to be*, as shown in 4, German uses *werden* 'to become' in the former case, as in 5, and *sein* 'to be' in the latter, as in 6.

(4) The door was closed. adjectival or verbal passive
   a. The door was quietly closed by the thief. verbal passive
   b. The door was closed for years. adjectival passive

(5) Die Tür wurde geschlossen. verbal passive
   the door became closed
   'The door was closed.'

   a. Die Tür wurde leise von dem Dieb geschlossen.
   the door became quietly by the thief closed
   'The door was quietly closed by the thief.'

[2] Most of the data presented in the following sections come from corpora of written German, namely, the morphosyntactically annotated corpus TIGER 1.0 (http://www.ims.uni-stuttgart.de/projekte/TIGER) and the COSMAS II corpus from the IDS Mannheim (http://www.ids-mannheim.de/cosmas2). Only occasionally did we resort to data from the internet found by Google search or rely exclusively on introspection in order to fill a corpus gap. Note, however, that all crucial claims in our argumentation are empirically corroborated by corpus data from COSMAS and TIGER.

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b. *Die Tür wurde jahrelang geschlossen.[3]
the door became for years closed

(6) Die Tür war geschlossen. adjectival passive
the door was closed
'The door was closed.'

a. *Die Tür war leise von dem Dieb geschlossen.
the door was quietly by the thief closed

b. Die Tür war jahrelang geschlossen.
the door was for years closed
'The door was closed for years.'

The English sentence in 4 is ambiguous between an eventive and a stative reading, and can only be disambiguated by the linguistic or extralinguistic context, as in 4a versus 4b. In 4a, the manner adverbial *quietly* and the agent phrase *by the thief* select the verbal passive, whereas in 4b, the durative adverbial *for years* combines with the adjectival passive form.[4] The situation is more transparent in German because verbal and adjectival passives are expressed by different means. Hence, a sentence like 6 only has a stative reading.

Another point to bear in mind is that in German, the adjectival passive formation is a very productive process. Adjectival passives coexist readily with primary adjectives, as in 7. Forms such as *geleert sein* 'to be emptied' and *geöffnet sein* 'to be opened' are not blocked by the existence of the respective primary adjectives and are completely regular.

(7) a. Die Tür war geöffnet/offen.
the door was opened/open
'The door was opened/open.'

[3] The ungrammatical sentence 5b could only be rescued by an iterative coercion of the verbal expression.

[4] Combining the durative adverbial with the verbal passive would force an iterative coercion; see note 3.

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b. Der Teller war geleert/leer.
the plate was emptied/empty
'The plate was emptied/empty.'

Finally, note that German also allows for so-called impersonal adjectival passives of unergative verbs, that is, intransitive verbs that form the present perfect tense with the auxiliary *haben* 'to have'. Some examples are given in 8.

(8) Nun ist genug gelacht/geschlafen/gearbeitet.
now is enough laughed/slept/worked.

We do not have the space here to discuss the intricacies of these impersonal constructions. For our present purposes it suffices to point out that adjectival passive formation is a broadly available grammatical option in German.[5]

2.2. Adjectival Conversion.
According to the traditional analysis, the "adjectival passive" construction belongs to the verbal paradigm, that is, it is built up from a verbal

[5] There are only a handful of verbs that are strictly excluded from adjectival passive formation. These are, in particular, weather verbs (i), reflexive verbs (ii), and stative verbs (iii), that is, verbs without Davidsonian event argument; see Maienborn 2005.

(i) Es regnet.
it rains
'It is raining.'
*Es ist geregnet.
it is rained

(ii) Anna freut sich.
Anna rejoice REFL
'Anna is happy.'
*Anna ist gefreut.
Anna is rejoiced

(iii) Das Buch kostet 10€.
the book costs 10€
'The book costs 10 Euros.'
*10€ sind gekostet.
10€ are cost

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participle (VPART) and a passive auxiliary *sein* 'to be'. Thus, the underlying structure is assumed to be the one given in 9.[6]

(9) Die Tür ist geschlossen.
AUX [$_{\text{VPART}}$ geschlossen]

The alternative view, for which we argue here, treats the adjectival passive as a combination of the copula *sein* with an adjectivized participle, as in 10. Under this approach, the term "adjectival passive" is obviously a misnomer; however, since it is well established in the literature we continue to use it in the remainder of this article.

(10) Die Tür ist geschlossen.
COP [$_{\text{AP}}$ [$_{\text{A}}$ [$_{\text{VPART}}$ geschlossen] ø]]

The adjectival conversion analysis in 10 follows Lieber 1980 in deriving the adjectival participle from its verbal counterpart via zero-affixation.[7] This structure allows us to derive the semantics of adjectival passives compositionally by applying the semantic content of the adjectival zero-affix to the verbal participle (see Kratzer 2000 and Maienborn 2009, 2011 for two proposals).[8]

The debate over which of the two analyses of adjectival passive should be preferred has given rise to a large collection of diagnostics which provide ample evidence for the adjectival status of the participle (see, in particular, Höhle 1978, Litvinov & Nedjalkov 1988, Lenz 1994, Kratzer 1994, 2000, Rapp 1997, 1998, Maienborn 2007). Hence, current accounts all adhere to some version of the adjectival conversion analysis schematized in 10. In what follows, we present a representative sample

[6] Proponents of (different kinds of) verbal analyses for the adjectival passive in German are Helbig (1983, 1987), Leiss (1992), and—in parts—Lenz (1994), among others.

[7] See Olsen 1986, 1987, 1990 for a discussion of the pros and cons of analyzing conversion in German as a sub-case of derivation with a zero-affix.

[8] Using Spencer's (2010) terminology for cases of lexical relatedness, the adjectivization of the verbal participle would belong to the class of semantically enriched transpositions.

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of these diagnostics to illustrate the behavior of standard adjectival passives based on transitive verbs. We focus on the following four diagnostics:[9]

(i) Adjectival negation
(ii) Adjectival gradation
(iii) Coordination with genuine adjectives
(iv) Adjectival word formation

Let us first consider adjectival negation. Unlike its English cousin, the German negative affix *un-* only combines with adjectives (and nouns), but not with verbs. Thus, in 11 the combination of a participle and *un-* clearly indicates that adjectival conversion of the participle has taken place.

(11) a. Oft waren diese Regeln ungeschrieben,
Often were these rules unwritten

aber sie waren trotzdem jedem klar.
but they were nevertheless everybody clear

'These rules were often unwritten, but they were still clear to everyone.' (TIGER s11406)

b. Obwohl Global Marketing als die Herausforderung der
although global marketing as the challenge of-the

Zukunft bezeichnet wird, sind viele Fragen ungeklärt.
future labeled is are many questions unsettled

'Although global marketing is labeled as the challenge of the future, many questions are unsettled.' (TIGER s24067)

[9] Note incidentally that, at least in German, the attributive use of the participle is not a really reliable diagnostic for adjectivehood. Attributive participles still have typical verbal properties and are less restricted than adjectival passives. See Wunderlich 1997 and Rapp 2001 for two proposals that analyze attributive participles as "mixed categories" with both verbal and adjectival properties.

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c. dass ich des Orgelns unkundig bin, weshalb
that I the playing-organ ignorant am which-is-why

das Orgelwerk leider noch immer unkomponiert ist.
the organ piece regrettably still un-composed is

'that I cannot play the organ, and so unfortunately the organ piece is as yet unwritten.'
(Max Goldt: *Mind-Boggling*; see Maienborn 2007:91)

As far as adjectival gradation is concerned, adjectival passives may also display comparative or superlative morphology, as shown in 12. This, again, is a clear indication that the participle has turned into an adjective. Even though the relevant data are rare, that is, adjectivized participles are semantically not particularly well-suited for adjectival gradation (they pattern with other ungradable adjectives in this respect), the mere existence of regularly formed comparative or superlative forms in 12 is sufficient to establish the adjectival status of these participles.

(12) a. Tagsüber fällt es natürlich leichter, auf kleine "Sünden"
by day fall it naturally easier at little sins

zu verzichten—man ist einfach abgelenkter.
to abdicate one is just distracted-COMP

'Of course during the day it is easier to abstain from little "sins" —one is just more distracted.' (COSMAS M00/MAR.05611)

b. Am bedrohtesten sind die Landtage.
the threatened-SUPERL are the parliaments
'The most threatened are the parliaments.'
(COSMAS V98/MAI.21411)

c. …Autor, der viel berühmter
…author who much famous-COMP

und vor allem weitaus gelesener war als Goethe
and above all far read-COMP was than Goethe

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'author who was much more famous and above all far more frequently read than Goethe.'
(*Die Zeit*, 29.07.1999; see Maienborn 2007:93)

The next diagnostic, coordination with genuine adjectives, also supports the adjectival status of the participles in question. Since only elements of the same category can be conjoined coordination is a reliable diagnostic for establishing the category of a word (see, among others, Lang 1984). In 13, adjectival passives are coordinated with genuine adjectives within coordinated copula structures. Once again, this is strong evidence for the adjectival nature of the participles.

(13) a. Entlassungen seien weder geplant noch nötig.
Dismissals are neither planned nor necessary
'Dismissals are neither planned nor necessary.' (TIGER s3166)

b. [...] all das ist blitzsauber geputzt und zur Abgabe bereit.
all that is spotlessly cleaned and for delivery ready
'it is all spotlessly clean and ready for delivery.'
(COSMAS A98/NOV.76554)

c. Diese eskalierten in einer Abrechnung Pickfords
these escalated in a payoff Pickfords
mit Richard Leakey in Buchform, nachdem
with Richard Leakey in book-format after
Leakey weltberühmt, Pickford jedoch entlassen war.
Leakey world-famous, Pickford but dismissed was
'This escalated in a book in which Pickford settled scores with Richard Leakey, after Leakey had become world-famous but Pickford had been fired.'
(*Die Zeit*, 14.12.2000; see Maienborn 2007:94)

If 13a–c were instances of cross-categorial coordination, where the finite form of *sein* 'to be' is simultaneously a passive auxiliary and a copula, this should lead to a highly marked structure. Sentences 14 and 15 exemplify such cases of cross-categorial coordination, in which a homo-

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nymous word receives two readings at the same time. In 14, *haben* 'to have' is used both as a full verb and a perfect auxiliary. In 15, *sein* 'to be' is first interpreted as an identificational copula and then needs to be reanalyzed as a predicational copula.

(14) *Peter hat Hunger und gekocht.
Peter has hunger and cooked

(15) *Wir sind Michael, Sascha und weg
we are Michael, Sascha and away
(SWR3 Morning Show, Hartung-Schaidhammer p.c.)

As 15 shows, even if a minor shift is required, that between an identificational use of the copula and its predicational use, a clear grammatical defect arises. In contrast, no such deviance is observed in 16, where an NP is coordinated with an AP and a PP. Since these phrases are all used predicatively there is no need for any reanalysis. Here, *sein* may consistently be interpreted as a predicational copula, hence the well-formedness of 16.

(16) Peter ist Banker, sehr fleißig und aus guter Familie.
Peter is banker very hard-working and from good family
'Peter is a banker, hard-working and from a good family.'

The observations regarding 14–16 strongly suggest that no cross-categorial coordination is at work in the case of 13. The respective participles are readily conjoined with regular adjectives to form complex predicative APs. This requires prior adjectival conversion of the verbal participles.

Furthermore, the participles in adjectival passives take part in a typical adjectival word formation process. They build adjectival compounds with nouns or adverbs as non-heads, as shown in 17.

(17) a. Sonnenbeschienen wie Hauff war, saß er zwar
sun-illuminated like Hauff was, sat he indeed

mit 38 Lenzen als jüngstes Kabinettsmitglied
with 38 years as youngest cabinet-member

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in erlauchter Runde.
in illustrious circle

'As "sun-kissed" (i.e. privileged) as Hauff was, at the age of 38 he was the youngest cabinet member in an illustrious group.'
(COSMAS H86/UA3.00526)

b. Sie ist handbestickt, mit Hirschhornknöpfen versehen
she is hand-embroidered, with staghorn-buttons endued

und hat alle Merkmale einer originalen Ledernen.
and has all features of-an original leather-made

'It is hand-embroidered, with horn buttons and everything you would expect of genuine leather.'
(COSMAS O97/JAN.09541)

c. Patienten, die in hohem Maße
patients who to a great extent

selbst- oder fremdgefährdet sind
self- or external-endangered are

'Patients who are at great risk from themselves or others.'
(COSMAS N98/OKT.38638)

This word formation pattern is highly productive in German. Besides more or less lexicalized forms such compounds are also readily built "online" as shown by the occasional compounds *schwedentrainiert* 'sweden-trained' or *Diana-bereinigt* roughly: 'Diana-purged' in 18. For instance, the intended interpretation of *schwedentrainiert* in 18a is that the Japanese referred to was "trained" in Sweden and thus got used to drinking (lots of) alcohol.

(18) a. Ich hatte Sorge
I had headaches

wie der Japaner das Oktoberfest finden würde,
how the Japanese the Oktoberfest find would,

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aber es stellte sich heraus, dass er schwedentrainiert war.
but it turned REFL out that he sweden-trained was

'I was worried about what the Japanese (guy) would think about the Oktoberfest, but it turned out that he was Sweden-trained.'
(overheard on 11/2007)

b. Die Realität ist heute weitgehend Diana-bereinigt.
the reality is today largely Diana-purged

'Reality today is largely purged of Diana.'
(Spiegel-online 18.07.2007, report about the 10th anniversary of the death of Princess Di)

Note that there is no analogous word formation pattern for verbs. The compounds in 17 have no finite verbal counterpart, as shown in 19 (see Maienborn 2007 for more details).

(19) a. *Es sonnenbescheint Hauff./*Es bescheint Hauff sonne.
it sun-illuminates Hauff it illuminates Hauff sun

b. *Sie handbestickte die Jacke. /
she hand-embroidered the jacket

*Sie bestickte die Jacke hand.
she embroidered the jacket hand.

c. *Die Patienten fremdgefährden die Sicherheit. /
the patients external-endanger the security.

*Die Patienten gefährden die Sicherheit fremd.
the patients endanger the security external

Once again, we are led to conclude that the participle must have undergone an adjectival conversion process. This opens up the possibility for the particular kind of adjectival word formation illustrated in 17 and 18.

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Up to this point, we have provided ample empirical evidence for the adjectival nature of adjectival passives. The results of all four diagnostics consistently point towards an analysis of the adjectival passive in terms of a copula construction whose predicate is formed by an adjectivized verbal participle (see the schema in 10).[10]

In Stolterfoht, Gese, & Maienborn 2010, we provided additional psycholinguistic evidence for the claim that adjectival passives rely on an

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[10] In fact, there is only one major puzzle adjectival analyses have to struggle with. This is the restricted ability of adjectival passives to combine with typical verbal modifiers such as agent phrases, instrumentals, and locatives as in (i)–(iii). This seems to suggest that the verb's event argument is still available for composition after all; see the discussion in Kratzer 1994, 2000 and Rapp 1998.

(i) Die Zeichnung ist von einem Kind angefertigt/*schön. Agent
the drawing is by a child done/*pretty.
'The drawing is done / *pretty by a child.'

(ii) Der Brief war mit roter Tinte geschrieben/*leserlich. Instrumental
the letter was with red ink written/*legible
'The letter was written / *legible in red ink.'

(iii) Die Birnen waren in Rotwein gedünstet/*weich. Locative
the pears were in red wine simmered/*soft
'The pears were simmered / *soft in red wine.'

Kratzer (1994, 2000) proposes to account for these data by assuming that the adjectival ø-affix may attach at the lexical level as well as at the phrasal level. In the latter case, adjectivization applies to a whole VP, including verbal modifiers. Kratzer's solution has been taken up and developed further by Rapp (1997, 1998), von Stechow (1998), Anagnostopoulou (2003), Alexiadou & Anagnostopoulou (2008), among others. However, see Maienborn 2007, 2011 for arguments against a phrasal adjectivization account of the data in (i)–(iii). Maienborn proposes an alternative solution that assumes only lexical adjectivization of the verbal participle even in (i)–(iii). In a nutshell, Maienborn argues that verbal modifiers are only admissible in adjectival passives if they form a compact, almost word-like unit with the verbal participle. The exact structural spell-out of this and other pecularities of the verb's immediate structural vicinity is still poorly understood; see also Haider's 2010:335ff remarks on the integration of co-predicates into verbal clusters.

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adjectival conversion process. With a self-paced reading study, we tested the hypothesis that conversion leads to additional processing costs and that, therefore, adjectivized participles are processed more slowly than their verbal counterparts in verbal passives. For the processing of the sentences in 20 we predicted longer reading times for the participle *verschüttet* 'spilled' after *sein* than after the passive auxiliary *werden* since the process of adjectival conversion is necessary for the adjectival passive in 20a but not for the verbal passive in 20b. The behavior of the participles in combination with *sein* and *werden* was compared with that of genuine adjectives as in 21, where no additional processes are involved and therefore no reading time differences are expected.

(20) a. Die Milch war verschüttet und…
the milk was spilled and

b. Die Milch wurde verschüttet und…
the milk became spilled and…

(21) a. Die Milch war sauer und…
the milk was sour and…

b. Die Milch wurde sauer und…
the milk became sour and…

As predicted, the results of our self-paced reading study showed significantly longer reading times for the participle after *sein* in the adjectival passive condition in 20a than after the passive auxiliary *werden* in the verbal passive condition in 20b, whereas no significant reading time differences were observed for the sentences with adjectives in 21. Alternative frequency-based explanations for the observed effects could be excluded on the basis of corpus studies. Thus, we concluded that the reading time differences reflect an additional processing effort in the case of adjectival passives due to adjectival conversion (for further details see Stolterfoht, Gese, & Maienborn 2010). These psycholinguistic findings fit neatly into the picture of adjectival conversion developed so far on the basis of corpus data.

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3. Adjectival Conversion of Unaccusatives: Corpus-Based Evidence.

3.1. The Four Diagnostics Applied to Unaccusatives.

Having provided sufficient empirical evidence in support of the claim that so-called adjectival passive constructions are, in fact, copula sentences with an adjectivized verbal participle, we now turn to the question which verbs can be adjectivized in this way. More specifically, we are interested in whether the participles of unaccusatives, that is, intransitive *sein*-verbs, can be converted into adjectives that show up in copula structures as well. To this end, we apply the set of adjectival tests to unaccusatives.[11]

Let us start with the case of *un*-affixation. As the examples 22–25 show, we do, in fact, find instances of *un*-affixation with unaccusatives.

(22) Die Farben sind praktisch unverblasst.
the colors are practically un-faded
'The colors are practically unfaded.'
(http://www.spiegel.de/wirtschaft/0,1518,481287,00.html, Spiegel-Online, accessed March 4, 2008)

(23) gefolgt von Spott und Hohn,
followed by mockery and derision

die aber so ungelungen sind,
which but so un-succeeded are

daß wir sie nächstenliebend verschweigen.
that we them altruistically keep secret

'... followed by mockery and derision which however were such a failure that we altruistically keep them secret.'
(COSMAS: P94/NOV.39766)

(24) Unter diesem Gesichtspunkt ist der Nous ewig, göttlich,
under this view is the nous infinite divine

[11] In this and the following section, we only use verbs that are clearly identifiable as unaccusatives, as indicated by the choice of the perfect auxiliary *sein*, and that do not have an additional transitive variant.

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unentstanden unsterblich, unvermischt leidenslos,
un-emerged immortal unspoiled afflictionless,

reine Energie.
pure energy

'From this point of view the nous is infinite, divine, unemerged, immortal, unadulterated, unsuffering, pure energy.'
(Johannes Hirschberger, *Geschichte der Philosophie*, Bd. 1, Freiburg, 1948:9027)

(25) Wir sind armer denn die armen Tiere,
we are poorer than the poor animals

die ihres Todes enden, wenn auch blind,
which their deaths end if also blind

weil wir noch alle ungestorben sind.
because we still all un-died are

'We are poorer than the poor animals, who at least end with their death, albeit blindly; for we go on afterwards, still not dead.'
(Rainer Maria Rilke, *Das Stundenbuch*, translation by Stevie Krayer)

Examples of this kind are admittedly quite rare. Nevertheless, existing examples are perfectly grammatical and follow the regular formation and interpretation pattern. Thus, we can safely conclude that there are at least some unaccusatives, whose participle can (under certain circumstances, as discussed in section 5) be converted into an adjective, which in turn can be used predicatively together with the copula *sein*.

The same picture emerges with respect to adjectival gradation. Once again, we find well-formed instances of comparative or superlative morphology with unaccusatives, as shown in 26–29.

(26) Manchmal versinken Länder ja wirklich.
sometimes sink countries PRT really

Und wenn sie weg sind, schmelzen sie
and when they gone are fuse they

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mit der Guten Alten Zeit zusammen, werden
with the good old time together become

umso schöner, je verschwundener sie sind.
so-much more beautiful the more disappeared-COMP they are

'Countries do sink sometimes. And when they are gone, they melt together with the good old times, and become the more beautiful the more vanished they are.' (COSMAS R98/DEZ.98388)

(27) Der Dom ist verfallener, denn je.
the cathedral is decayed-COMP than ever
'The cathedral is more decayed than ever.'
(COSMAS N92/DEZ.45715)

(28) Die im Spätsommer zu entfernenden Triebe sind
the in-the late-summer to remove sprouts are

gut an den Überresten des Fruchtbehangs zu erkennen.
good on the leftover of-the fruit-hangings to identify

Außerdem sind sie deutlich verwelkter
moreover are they noticeably faded-COMP

als die saftig grünen Triebe,
than the juicily green sprouts

die fürs nächste Jahr natürlich stehen bleiben.
that for-the next year naturally remain.

'You can identify the sprouts which you have to cut off in late summer by the fruit left over. Moreover, they are noticeably more faded than the juicily green sprouts which must naturally remain for next year.'
(http://www.wdr5.de/service/service_umwelt/244606.phtml, accessed August 12, 2007)

(29) Am gelungensten wohl ist
the succeeded-SUPERL perhaps is

eine Sciencefiction von Chris Niemeyer.
a science fiction by Chris Niemeyer

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'The most successful one is perhaps a science fiction story by Chris Niemeyer.' (COSMAS E99/JUL.18332)

Next, let us determine whether unaccusatives can combine with genuine adjectives in coordination structures. Examples 30–33 show copula structures with unaccusatives that show up as a conjunct within a predicative phrase.

(30) Infarktpatientinnen,
infarct patients

die vereinsamt und besonders depressiv sind,
who grown-lonely and especially depressive are

haben ein hohes Risiko für eine zweite Attacke.
have a high risk for a second attack

'Infarct patients that are lonely and particularly depressive have a high risk of a second attack.' (COSMAS O98/AUG.82091)

(31) Im Winter war er [der See] zugefroren
in-the winter was it [the lake] up-frozen

und sehr beliebt zum Schlittschuhlaufen.
and very popular for ice skating

'In winter the lake was frozen over and very popular for ice skating.' (COSMAS A00/AUG.52616)

(32) Die Mehrzahl ist, so Holm, erwerbslos,
the majority is, [...] unemployed,

abgewandert oder in Vorruhestand.
emigrated or in early retirement.

'According to Holm most of them are unemployed, emigrated or in early retirement.' (TIGER s619)

(33) Es klingt unseren, den naiven Anthropomorphismen
it sounds to our the naïve anthropomorphisms

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entwöhnten Ohren einigermaßen anstößig,
weaned ears somewhat offensive

wenn wir von Gott sagen, dass er krank,
if we about God say that he ill

verreist oder unfähig sei.
gone-on-a-trip or unable be

'In our ears weaned off the naïve anthropomorphisms it sounds somewhat offensive if we say that God is ill, gone away or incapable.' (http://www.dober.de/religionskritik/soelle.html, accessed February 22, 2011)

If the participles of the unaccusative verbs *vereinsamen, zufrieren, abwandern*, and *verreisen* in 30–33 had retained their original verbal status the finite form of *sein* 'to be' would have to be analyzed simultaneously as a perfect tense auxiliary and a copula. This would lead to a highly marked structure (see the remarks on cross-categorial coordination and the discussion of 14–16 in section 2.1). The sentences in 30–33 are perfectly grammatical, which strongly suggests that no cross-categorial coordination is at work in the case of unaccusatives. We can safely conclude that the participles do not show up as perfect tense verb forms here—which would require a reanalysis of *sein*—but were converted into adjectives, which can conjoin freely with other APs and PPs to form complex predicative phrases.

Finally, participles of unaccusatives also take part in the adjectival word formation process discussed in section 2. Sentences 34–37 show participial compounds with nouns or adverbs as non-heads. As we saw in section 2, this requires that the respective participles *gereift*, *verstaubt, erkrankt, gereist* be converted into adjectives first. That is, 34–37 are regular copula sentences, whose predicate consists of an adjectivized unaccusative.

(34) So würde z.B. eine Treibhaustomate den Ansprüchen
so would e.g. a green-house-tomato the requirements

nicht genügen: sonnengereift muss sie sein.
not fulfill sun-ripened must she be

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'So a greenhouse tomato for instance would not fulfill the requirements: it must be sun-ripened.'
(COSMAS A99/AUG.57731)

(35) Mehlverstaubt, prospektbeladen
flour-dusted, leaflet-laden

und um einige esoterische Anschauungen reicher,
and by some esoteric views richer

begannen sich die Mühlräder in unseren Köpfen zu drehen.
began REFL the mill-wheels in our heads to turn

'Dusted with flour, laden with leaflets and richer with some esoteric views, the mill wheels in our heads began to turn.'[12]
(COSMAS X96/SEP.21343)

(36) Poiger und Cerny sind grippeerkrankt.
Poiger and Cerny are flu-sickened
'Poiger and Cerny are sick with the flu.'
(COSMAS O95/MAR.22600)

(37) Der Dichter Federico Garcia Lorca
the poet Federico Garcia Lorca

war weltoffen und vielgereist
was cosmopolitan and a lot-travelled

'The poet Federico Garcia Lorca was cosmopolitan and well-travelled.' (COSMAS P96/AUS.30594)

So far we have provided ample corpus-based evidence that the ability to form so-called adjectival passives is not limited to (a subclass of) transitive verbs but is also shared by at least some unaccusatives. Our results suggest that these constructions should be considered independent from verbal passives in several respects: First, they definitely do not belong to the passive paradigm but are specific instances of adjectival

[12] Note that *verstauben*, unlike its English translation *to dust* given in 35, does not have a transitive variant but only shows up as intransitive *sein*-verb. (The transitive counterpart would be *bestäuben*.)

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copula constructions. Second, the adjectivization pattern in question is not limited to verbs that form passive forms but has a broader application.

3.2. Unaccusatives and Temporal Adverbials.
So far our investigation suggests that a combination of *sein* with a participle of an unaccusative verb as in 38 is ambiguous. It can be interpreted either as a present perfect tense sentence or as a present tense copula sentence. Temporal adverbials help distinguish between the two readings. In 38a, the deictic adverbial *vor zwei Wochen* 'two weeks ago' serves to locate the verbal referent before the utterance time. It is incompatible with a present tense copula reading, and can only combine with the present perfect variant. In contrast, in 38b, the durational adverbial *seit zwei Wochen* roughly 'since two weeks ago' marks the left temporal boundary of a homogeneous situation (that is, a process or state). It conveys that the time interval for which the situation holds extends over the relevant reference time (which for our purposes may be identified with the utterance time). Thus, the *seit*-adverbial combines with the copula variant of 38.[13]

(38) Otto ist verreist. ambiguous
Otto is gone-on-a-trip

a. Otto ist vor zwei Wochen verreist. present perfect
Otto is before two weeks gone-on-a-trip
'Otto went on a trip two weeks ago.'

b. Otto ist seit zwei Wochen verreist. copula
Otto is since two weeks gone-on-a-trip
'Otto is gone on a trip since two weeks ago'
'Otto has been on a trip for two weeks now.'

[13] The German *seit*-adverbial has no direct counterpart in English. A sentence like 38b expresses that the state of Otto being away on a trip holds for two weeks going back from the utterance time and may continue to hold in the future. In what follows, we approximate the meaning of *seit*-adverbials by translating them with "since … ago"; see Musan 2002, 2003 and von Stechow 2002 for discussions of the semantics of German *seit*-adverbials.

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In what follows, we use the distributional difference with respect to *vor*- and *seit*-adverbials as a diagnostic for teasing apart present tense copula sentences and present perfect sentences. We also use this diagnostic to control a reader's preference for a stative reading of the copula over a present perfect eventive reading of a combination of *sein* and unaccusative participle.[14]

So far we have demonstrated that unaccusatives do occasionally show up in so-called adjectival passive constructions. The question to be answered next is whether all or only some unaccusative verbs can form adjectival passives. Note that whereas verbs such as *verreisen* 'to go on a trip' combine naturally with both *vor*- und *seit*-adverbials (see 38 above), there are other unaccusative verbs that can only combine with *vor*-adverbials, as in 39. When combined with *seit*-adverbials they sound quite odd, as shown in 40.

(39) a. Der Ballon ist vor zwei Minuten geplatzt.
the balloon is before two minutes burst
'The balloon burst two minutes ago.'

b. ??Der Ballon ist seit zwei Minuten geplatzt.
the balloon is since two minutes burst
'The balloon is burst since two minutes ago.'

(40) a. Die Skulptur ist vor zwei Monaten entstanden.
the sculpture is before two months come about
'The sculpture came into existence two month ago.'

[14] There is an ongoing debate in the literature on the German perfect whether *sein*- and *haben*-perfects have several different readings (including a resultative, that is, stative, reading; see, among others, Löbner 2002 and von Stechow 2002), or whether the relevant facts can be accounted for with a single reading; see, for example, Klein 1999 and Musan 2001, 2002, 2003. We do not want to delve into this notoriously intricate issue here. Given the large amount of independent evidence presented in section 3.1 that shows that unaccusatives may be converted into adjectives and then combined with the copula *sein*, we take cases like 38b to be instances of the copula.

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b. ??Die Skulptur ist seit zwei Monaten entstanden.
the sculpture is since two months come about
'The sculpture came into existence since two months ago.'

The incompatibility of unaccusatives such as *platzen* 'to burst' or *entstehen* 'to come about' with *seit*-adverbials suggests that these verbs do not form adjectival passives.

Having established that unaccusatives have the potential to form adjectival passives we now turn to a more detailed analysis of their adjectivization behavior. In particular, our goal is to establish whether adjectivized participles of unaccusative verbs constitute a somewhat marginal case, or whether they follow the regular pattern. In section 4, we present the results of a psycholinguistic study that shed some light on the exact linguistic conditions that govern the adjectival conversion of unaccusatives.

4. Adjectival Conversion of Unaccusatives: Psychological Evidence.

4.1. Two Groups of Unaccusative Verbs.

In order to find out whether the introspective judgments in 38–40 can be empirically substantiated, and to what extent unaccusative verbs take part in adjectival passive formation, we conducted an acceptability rating study. Based on our corpus findings we identified two sets of unaccusatives. The first group, Unaccusative 1, comprised participles of unaccusative base verbs that occurred in our corpora in combination with *seit*-adverbials. The second group, Unaccusative 2, consisted of unaccusative participles that did not show up with *seit*-adverbials in the corpora. The two groups of unaccusative verbs are given in 41 and 42.

(41) Unaccusative 1
wachsen 'to grow', welken 'to fade', verreisen 'to go on a trip', verschwinden 'to vanish', ablaufen 'to expire', verstreichen 'to elapse', versinken 'to sink', erlöschen 'to extinguish', anlaufen 'to start', schwellen 'to swell', wegfallen 'to drop out', vergehen 'to pass by', abwandern 'to migrate', entbrennen 'to break out', weichen 'to give way', einkehren 'to stop for a bite', verstummen 'to fall silent', abreißen 'to break off', steigen 'to rise', sinken 'to fall'

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(42) Unaccusative 2[15]
entstehen ‘to arise’, erscheinen ‘to appear’, kommen ‘to come’, fliehen ‘to run away’, zusammentreffen ‘to meet’, fallen ‘to tumble’, umkommen ‘to perish’, platzen ‘to burst’, sitzenbleiben ‘to remain seated’, hochspringen ‘to jump up’, explodieren ‘to explode’, geschehen ‘to happen’, auftauchen ‘to show up’, einsteigen ‘to board’, gelingen ‘to succeed’, anreisen ‘to arrive’, eintreten ‘to enter’, erfolgen ‘to take place’, bekannt werden ‘to emerge’, passieren ‘to come about’

While the corpus data support the availability of a copula reading in addition to the *sein*-perfect for the verbs of the Unaccusative 1 group, for the members of the Unaccusative 2 group such an option was not attested in the corpora. The goal of our acceptability rating study was to find out whether the participles in the Unaccusative 2 group really behave differently with respect to adjectival conversion, or whether the lack of *seit*-adverbials is just an accidental corpus gap. More specifically, we tested the following hypothesis: If there is a (sub)set of unaccusative verbs (presumably, those from the Unaccusative 1 group) that form fully acceptable adjectival passives, for these verbs there should be no difference in acceptability ratings between combinations with *seit-* and *vor*-adverbials. In contrast, for the members of the Unaccusative 2 group there should be a clear rating difference, that is, there should be a preference for combinations of such verbs with *vor*-adverbials.

4.2. Acceptability Rating Study: Copula versus Sein*-Perfect.*
Methods: The participants were 40 undergraduate students at the University of Tübingen who participated in the study for course credit. All were native speakers of German. The materials manipulated the type of the temporal adverbial (*seit-* or *vor*-adverbial) and the type of unaccusative verbs (Unaccusative 1 verbs versus Unaccusative 2 verbs). Some examples are given in 43 and 44.

[15] Note that all verbs in 41 and 42 form the present tense with the auxiliary *sein*, thus qualifying them as unaccusatives.

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(43) Unaccusative 1

a. Meine Nachbarin ist seit zwei Wochen verreist.
my neighbor is since two weeks gone-on-a-trip
'My neighbor is gone on a trip since two weeks ago.'

b. Meine Nachbarin ist vor zwei Wochen verreist.
my neighbor is before two weeks gone-on-a-trip
'My neighbor went on a trip two weeks ago.'

(44) Unaccusative 2

a. ??Die Skulptur ist seit zwei Monaten entstanden.
the sculpture is since two months come about
'The sculpture came into existence since two months ago.'

b. Die Skulptur ist vor zwei Monaten entstanden.
the sculpture is before two months come about
'The sculpture came into existence two months ago.'

In total, we had 40 pairs of sentences with unaccusative verbs, 20 items from each group. The complete set of experimental sentences is provided in the appendix. The 40 experimental items were combined with 40 filler sentences. Two presentation lists were created and randomized in parallel two times. Each participant saw only one version of each sentence (that is, either with a *seit-* or with a *vor*-adverbial) counterbalanced across the two groups of sentences.

Procedure: The questionnaires were distributed to students in an introductory linguistics class. The participants were instructed to read the sentences carefully and to rate them on a scale from 1 to 6. If the sentence was easy to understand, made sense, and seemed to be in "good," natural German, then they should rate it as 1. If the sentence did not make sense, or if they thought it was in "bad" German, then they should rate it as 6.

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Results: The results are presented in table 1.

Temporal adverbial	Verb type	
	Unaccusative 1	Unaccusative 2
SEIT-ADVERBIAL	2.0	4.3
VOR-ADVERBIAL	1.9	1.4

Table 1. Mean ratings for the four experimental conditions.
(scale 1–6; 1 = good/natural, 6 = bad)

A repeated measures ANOVA revealed a highly significant main effect of adverb type (F1 (1,39) = 282.29, p1 < .001; F2 (1,19) = 159.07, p2 < .001). Sentences with the *vor*-adverbial were rated better than sentences with the *seit*-adverbial (1.6 versus 3.3). This effect is due to the sentences in the "Unaccusative 2" condition.

The ratings also showed a highly significant effect of verb type (F1 (1,39) = 90.28, p1 < .001; F2 (1,19) = 30.30, p2 < .001). Sentences that contained verbs from the Unaccusative 1 group were rated better than sentences with verbs from the Unaccusative 2 group (1.9 versus 2.8). Again, this is due to the sentences in the "Unaccusative 2" condition with the *seit*-adverbial.

Additionally, we found a highly significant interaction of adverbial type and verb type (F1 (1,39) = 256.18, p1 < .001; F2 (1,19) = 69.29, p2 < .001). Sentences with *seit* were rated much better if they contained a verb from the Unaccusative 1 group (see table 1). Since the interaction was significant, we performed more focused tests. We compared the different adverbials separately for the two verb types. For the verbs from the Unaccusative 1 group the comparison yielded no significant effect of adverbial type (F1 (1,39) = 1.99, p1 = .17; F2 (1,19) = .12, p2 = .73). However, for verbs from the Unaccusative 2 group there was a highly significant effect of adverbial type (F1 (1,39) = 374.14, p1 < .001; F2 (1,19) = 291.74, p2 < .001).

For the comparison of rating differences between *seit-* and *vor-*adverbials for the two verb types (see table 2), a highly significant effect of verb type was found (F1 (1,39) = 256.18, p1 < .001; F2 (1,19) = 69.29, p2 < .001).

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Difference	Verb type	
	Unaccusative 1	Unaccusative 2
seit – vor	.13	2.9

Table 2. Rating differences (*seit - vor*) for the two verb types.

Discussion: The goal of our rating study was to find out whether and to what extent unaccusative verbs can form fully acceptable adjectival passives. The results showed a highly significant effect of the type of unaccusative verb. The rating difference for sentences such as 43a versus 43b was smaller than for sentences such as 44a versus 44b. There was only a significant effect of the type of adverbial for sentences such as 44. There was no significant difference among sentences such as in 43 that contain verbs from the Unaccusative 1 group: They were judged fully acceptable with both the *seit*-adverbial and the *vor*-adverbial. These results add, first of all, psycholinguistic evidence to our corpus linguistic findings reported in section 3—they suggest that unaccusatives take part in the adjectival passive formation. Second, the results of this first rating study suggest that the adjectival conversion of the verbal participle is restricted to a certain subset of unaccusatives and, thus, is not fully available for all unaccusatives. This conclusion calls for further investigation.

4.3. Pragmatic Factors.

The question is what are the characteristics of the subgroup of unaccusatives that readily form adjectival passives, and what differentiates them from those that do not. The verbs that exhibit the *sein*-perfect/copula ambiguity (as indicated by their compatibility with both *vor*- and *seit*-adverbials) and the verbs that exhibit a clear preference for *seit*-adverbials form two fairly heterogeneous sets of verbs (see the lists in 41 and 42). Note, for example, that verbs with resultative prefixes or particles such as *er-, auf-, um-, an-, ein-* can be found in both groups. Thus, a resultative meaning alone apparently does not guarantee that a verb can combine with a *seit*-adverbial and, thus, readily form an adjectival passive. In fact, there seem to be no clearly detectable semantic constraints determining group membership.

Note, furthermore, that our data disconfirm the few existing generalizations found in the literature. On the one hand, Nogami (2000:98) proposes that the unaccusatives that take part in adjectival

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passive formation are incremental theme verbs, like *zufrieren* 'to freeze up'. On the other hand, von Stechow (1998:27) characterizes the relevant class as non-causative achievements, such as *einschlafen* 'to fall asleep'. Neither generalization turns out to be correct. Nogami's proposal cannot account for the data in 45. These unaccusatives are not incremental theme verbs. Yet, they belong to the Unaccusative 1 group and were judged equally good with *vor*- and *seit*-adverbials in our rating study.

(45) a. Der Kontakt ist seit/vor Jahren abgerissen.
the contact is since/before years severed

b. Meine Nachbarin ist seit/vor zwei Wochen verreist.
my neighbour is since/before zwei weeks gone-on-a-trip

c. Der Verfassungsstreit ist seit/
the constitutional debate is since/
vor einem Jahr entbrannt.
before one year broken out

The data in 46 and 47 are problematic for von Stechow's generalization. On the one hand, the sentences in 46 express non-causative accomplishments, which should not be compatible with *seit*-adverbials according to von Stechow. Yet, they belong to the Unaccusative 1 group and received good ratings. The sentences in 47, on the other hand, express non-causative achievements. Nevertheless, they received bad ratings in combination with *seit*-adverbials.

(46) a. Die Leuchtreklame ist seit/vor Monaten erloschen.
the neon signs are since/before months extinguished

b. Die Kritik ist seit/vor ein paar Tagen verstummt.
the criticism is since/before a few days fallen-silent

(47) a. Der Junge ist ??seit/vor 10 Minuten gefallen.
the boy is since/before 10 minutes fallen

b. Der Luftballon ist ??seit/vor 10 Minuten geplatzt.
the balloon is since/before 10 minutes burst

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We conclude that there is no lexical and/or grammatical distinction at work here. Instead, the crucial factors are of a pragmatic nature. More specifically, the (in)ability of an unaccusative verb to form an adjectival passive turns out to be highly dependent on the linguistic and discourse context. Let us consider the verb *platzen* 'to burst'. Without any contextual information, sentence 48a is not acceptable. This might suggest that the unaccusative *platzen* does not form an adjectival passive. Yet, if we replace the subject of the sentence with an alternative expression, as in 48b, or embed the same sentence in a specific context that makes the resulting state of the balloon's bursting relevant in a certain sense (see below) as in 48c, the sentence's acceptability increases considerably.

(48) a. ??Der Luftballon ist seit fünf Minuten geplatzt.
the air balloon is since five minutes burst
'The balloon is burst since five minutes ago.'

b. Die Aktienblase ist seit zwei Wochen geplatzt.
the stock bubble is since two weeks burst
'The stock bubble is burst since two weeks ago.'

c. This year the opening of the festival will be signaled by a bursting balloon. A visitor asks: "Has the festival been opened yet?"

Ja, der Ballon ist seit fünf Minuten geplatzt.
yes the balloon is since five minutes burst
'Yes the balloon is burst since five minutes ago.'

Two further rating studies provide empirical evidence in support of the pragmatics approach. We show that the grammaticality of sentences judged problematic in the first study (that is, sentences that contain verbs from the Unaccusative 2 group) improves significantly if the adjectivized participle expresses a relevant property either by choosing a suitable alternative subject expression, as in 48b, or by manipulating the extra-sentential context, as in 48c. The details of these two rating studies are expounded in Gese, Stolterfoht, & Maienborn 2009. Here we provide a summary of those results that are relevant for our present purposes.

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Rating Study 2 Context Variation: In our second rating study, sentences with participles from the Unaccusative 2 group were embedded in either a neutral context, as in 49, or in a context that made the resulting state more salient, as in 50. The verbs were used with both *vor-* and *seit-* adverbials, as in 51.[16]

(49) Neutral context
Schichtwechsel in der Kardiologie-Abteilung des Krankenhauses. Der Arzt, der gerade anfängt, erkundigt sich bei seinem offensichtlich aufgeregten Kollegen, was in der letzten Schicht mit dem Herzinfarkt-Patienten geschehen sei. Dieser antwortet: ...

'Change of shifts in the cardiology department of the hospital. The doctor that is taking over is asking his visibly agitated colleague what happened to the cardiac patient. The colleague answers: ...'

(50) Resultative context
Wie jeder Arzt weiß, sind Wiederbelebungsmaßnahmen nur selten von Erfolg, wenn ein Herzstillstand länger als fünf Minuten anhält. Bei der Ankunft eines Herzinfarktpatienten erkundigt sich der diensthabende Arzt beim Rettungssanitäter, ob denn noch Hoffnung bestehe. Der Sanitäter verneint und fügt hinzu: ...

'Every doctor knows that resuscitation attempts are rarely successful in cases when cardiac arrest lasts more than five minutes. As a cardiac patient is brought in, the doctor on duty asks the paramedic whether there is any hope. The paramedic denies and adds: ...'

(51) a. Der Herzstillstand ist seit 10 Minuten eingetreten.
the cardiac arrest is since 10 minutes commenced

b. Der Herzstillstand ist vor 10 Minuten eingetreten.
The cardiac arrest is before 10 minutes commenced

[16] We made sure that all combinations of neutral/resultative contexts with *seit*/*vor*-target sentences were judged as equally plausible.

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Sentences with *vor*-adverbials such as 51b did not show any rating difference between the two types of contexts in 49 and 50. However, sentences with *seit*-adverbials as in 51a received significantly better ratings when embedded in a resultative context such as 50. Thus, the second rating study reveals a context effect: The context has an impact on the acceptability of copula sentences with adjectivized participles of unaccusative verbs.

Rating Study 3 Subject Variation: In our third rating study, we tested the hypothesis that a figurative use of a participle from the Unaccusative 2 group would lead to a better rating of the respective adjectival passive. The rationale behind this hypothesis was that a figurative interpretation of the participle is more costly and must therefore be properly legitimated by referring to a particularly informative resultant state (see section 5). To trigger a figurative interpretation of the participle we used abstract subjects. For a concrete interpretation we chose concrete subjects. This is illustrated in 52.

(52) a. *Der Junge ist seit zehn Minuten gefallen.
the boy is since 10 minutes fallen

b. Die Grenzen sind seit zwei Tagen gefallen.
the borders are since two days fallen

The results confirmed our hypothesis: Adjectival passives based on verbs from the Unaccusative 2 group received significantly better ratings in the figurative context.

In sum, both pragmatic factors—an appropriate context and a figurative interpretation—triggered the same effect: The acceptability ratings of sentences with adjectival passives based on verbs from the Unaccusative 2 group increased significantly. These findings support our claim that adjectival passive formation is not constrained primarily by grammar, and that it requires a pragmatic explanation. The question as to which verbs form an adjectival passive is not to be answered categorically, on a strictly grammatical basis. Rather, any verbal participle, except those mentioned in note 5 above, can undergo adjectival conversion. In particular, we conclude that adjectival passive formation can apply, in principle, to unaccusatives from both the Unaccusative 1

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and the Unaccusative 2 group, and the degree of acceptability of any particular construction depends crucially on pragmatic conditions.

5. Toward a Pragmatic Account of the Adjectival Passive Formation. The task of legitimating and interpreting the formation of adjectival passives in context is basically the task of pragmatics. Our findings concerning the adjectival passive formation for unaccusatives fit neatly into the pragmatic account of the interpretation of adjectival passives developed in Maienborn 2007, 2009, 2011. This proposal capitalizes on the insight that adjectival passive constructions are special instances of copula sentences. Adjectival passives assign a pragmatically salient, event-based ad hoc property to the subject referent. This property is conceived of as the result of the event named by the original verb. That is, while a standard copula sentence with a predicative adjective assigns a lexicalized property to the subject referent, which has a fixed place in the subject referent's property space (see Maienborn 2005 for the semantics of the copula), adjectival passives are a grammatically supplied means of creating ad hoc new, event-based properties, whose exact import, and therefore the place they occupy in the subject referent's property space, is more or less shaped by the context and by our contextually available world knowledge.

Certain verbs, particularly resultatives, which already specify a resultant state from which a relevant property can be derived, will require less (or virtually no) support from pragmatics to license the adjectival passive formation. This is the case, for example, of *geschlossen sein* 'to be closed' or *abgerissen sein* 'to be broken off', to take one of our Unaccusative 1 verbs. With other verbs, more contextual support is needed for identification of a suitable ad hoc property. An example of such a verb is *explodieren* 'to explode' from our Unaccusative 2 group. Without a relevant context it is hard to imagine a distinctive property that could be the result of something having exploded. Consequently, a sentence such as 53a sounds out of the blue. Yet, if the subject triggers a figurative interpretation of the verb as, for example, *the oil price* does in 53b, the adjectival passive becomes fully acceptable. According to our world knowledge, if the oil price explodes it remains high as a result. Thus, we are able to derive a sufficiently informative resulting property. This provides the necessary pragmatic legitimation for the adjectival passive formation.

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(53) a. ??Die Bombe ist seit 10 Minuten explodiert.
the bomb is since 10 minutes exploded

b. Der Ölpreis ist seit zwei Monaten explodiert.
the oil price is since two months exploded

Depending on the meaning of the original verb, such ad hoc properties can be more or less salient: In some cases, the relevant property follows naturally from the verb's lexical semantics, while in others, the interpretation relies heavily on contextual and world knowledge. However, the general pattern of forming and interpreting adjectival passives is the same in all these cases.

Our case study of unaccusatives provides evidence for a new perspective on the formation of adjectival passives. This word formation process is far less grammatically controlled than generally assumed: First, not only transitive verbs but also unaccusatives can form adjectival passives. Second, whether or not adjectival passive formation is possible is largely a matter of pragmatics. This latter conclusion paves the way for a more comprehensive account of the semantics and pragmatics of adjectival passives. With the adjectival conversion of a verbal participle the grammar provides a systematic means of deriving potentially new, deverbal adjectives that express an event-based ad hoc property.

APPENDIX
Materials of the Rating Study

Unaccusative 1

Das Vertrauen ist seit/vor drei Monaten gewachsen.
the trust is since/before three months grown

Die Blumen sind seit/vor Tagen verwelkt.
the flowers are since/before days wilted

Meine Nachbarin ist seit/vor zwei Wochen verreist.
my neighbour is since/before two weeks gone-on-a-trip

Das Gemälde ist seit/vor zwei Jahren verschwunden.
the painting is since/before two years disappeared

Das Haltbarkeitsdatum ist seit/vor vier Tagen abgelaufen.
the date-of-expiry is since/before four days expired

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Die Frist ist seit/vor zwei Tagen verstrichen.
the deadline is since/before two days elapsed

Atlantis ist seit/vor Urzeiten versunken.
Atlantis is since/before ages sunk

Die Leuchtreklame ist seit/vor Monaten erloschen.
the neon signs are since/before months gone out

Die Produktion ist seit/vor drei Monaten angelaufen.
the production is since/before three months started

Das Bein ist seit/vor zwei Tagen geschwollen.
the leg is since/before two days swollen

Die Subventionen sind seit/vor einem halben Jahr weggefallen.
the subsidy is since/before a half year ended

Die guten Zeiten sind seit/vor Jahren vergangen.
the good times are since/before years elapsed

Die Investoren sind seit/vor einigen Monaten abgewandert.
the investors are since/before some months wandered off

Der Verfassungsstreit ist seit/vor einem Jahr entbrannt.
the constitutional debate is since/before a year broken out

Die Nervosität ist seit/vor drei Minuten gewichen.
the nervousness is since/before three minutes died down

Die müden Wanderer sind seit/vor
the weary hikers are since/before
einigen Stunden eingekehrt.
some hours stopped-for-a-bite-to-eat

Die Kritik ist seit/vor ein paar Tagen verstummt.
the critique is since/before a few days fallen silent

Der Kontakt ist seit/vor Jahren abgerissen.
the contact is since/before years broken off

Die Terrorgefahr ist seit/vor dem Wochenende gestiegen.
the threat of terror is since/before the weekend augmented

Die Preise sind seit/vor drei Tagen gesunken.
the prices are since/before three days gone down

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Unaccusative 2

Die Skulptur ist seit/vor Monaten entstanden.
the sculpture is since/before months come about

Der Gast ist seit/vor zwei Tagen erschienen.
the guest is since/before two days turned up

Der Besuch ist seit/vor einer Woche gekommen.
the visitor is since/before one week come

Der Häftling ist seit/vor einer Woche geflohen.
the prisoner is since/before one week fled

Die Kommission ist seit/vor Stunden zusammengetroffen.
the committee is since/before hours come together

Der Junge ist seit/vor zehn Minuten gefallen.
the boy is since/before ten minutes fallen

Der Soldat ist seit/vor zwei Monaten umgekommen.
the soldier is since/before two months died

Der Luftballon ist seit/vor zwei Minuten geplatzt.
the air balloon is since/before two minutes burst

Der Schüler ist seit/vor einem Jahr sitzengeblieben.
the pupil is since/before one year remained-seated (had to repeat classes)

Der Toast ist seit/vor einer Minute hochgesprungen.
the toast is since/before one minute jumped up

Die Bombe ist seit/vor zwanzig Minuten explodiert.
the bomb is since/before twenty minutes exploded

Das Verbrechen ist seit/vor zwei Jahren geschehen.
the crime is since/before two years occurred

Der Vermisste ist seit/vor einer Woche aufgetaucht.
the missing person is since/before one week appeared

Der Fahrgast ist seit/vor zwei Stunden eingestiegen.
the passenger is since/before two hours boarded

Der Coup ist seit/vor Monaten gelungen.
the coup is since/before months succeeded

Der Feriengast ist seit/vor drei Stunden angereist.
the tourist is since/before three hours arrived

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Der Herzstillstand	ist	seit/vor	fünf	Minuten	eingetreten.
the cardiac arrest	is	since/before	five	minutes	occured

Der Haftbefehl	ist	seit/vor	zwei	Tagen	erfolgt.
the arrest warrant	is	since/before	two	days	issued

Der Skandal	ist	seit/vor	fünf	Wochen	bekanntgeworden.
the affair	is	since/before	five	weeks	become known

Der Unfall	ist	seit/vor	drei	Tagen	passiert.
the accident	is	since/before	three	days	happened

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