Building Statives
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Building Statives[1]

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1. Two kinds of adjectival passives

The adjectival passive construction that is traditionally called 'Zustandspassiv' ('state passive') in German seems to have the same syntactic and semantic properties as its English cousin, except that it is easier to identify. German state or adjectival passives select the auxiliary *sein* ('be'), and are therefore clearly distinguished from verbal or 'Vorgangs'-passives ('process passives'), which use the auxiliary *werden* ('get', 'become'). In spite of their appearance, German state passives do not form a homogenious class, however. There are two important subclasses that behave differently with respect to the adverbial *immer noch* ('still'), for example[2]:

Target state passives

(1) a. Die Geisslein sind immer noch versteckt.
The little goats are still hidden.

b. Die Reifen sind immer noch aufgepumpt.
The tires are still pumped up.

c. Der Deckel ist immer noch abgeschraubt.
The lid is still screwed off.

d. Das Gebäude ist immer noch geräumt.
The building is still evacuated.

e. Die Ausfahrt ist immer noch versperrt.
The driveway is still obstructed.

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[1] Thanks to the Berkeley Linguistic Society for inviting me to an enjoyable conference. In particular, I would like to thank Jeff Good for getting me to write this paper at all. Discussions with Edit Doron while I was a guest at the Center for Advanced Studies at the Hebrew University in Jerusalem in January (1998) were crucial to the development of some of the ideas contained in this paper.

[2] In the terminology of Nedjalkov and Jaxontov (1988), target state passives would be resultatives, and resultant state passives would be perfects. The observation that the behavior of *still* brings out the difference between resultatives and perfects is due to Nedjalkov and Jaxontov.

Resultant state passives

(2) a. Das Theorem ist (* immer noch) bewiesen.
The theorem is (*still) proven.

b. Der Briefkasten ist (* immer noch) geleert.
The mail box is (*still) emptied.

c. Die Wäsche ist (* immer noch) getrocknet.
The laundry is (*still) dried.

d. Die Gäste sind (* immer noch) begrüsst.
The guests are (* still) greeted.

e. Die Töpfe sind (* immer noch) abgespült.
The pots are (*still) washed up.

The terms 'target state' and 'resultant state' I used as labels for the two types of state passives are borrowed from Parsons (1990), who explains the difference between the two kinds of states as follows:

> Resultant states
> "For every event e that culminates, there is a corresponding state that holds forever after. This is "the state of e's having culminated," which I call the "Resultant state of e," or "e's R-state." If Mary eats lunch, then there is a state that holds forever after: The state of Mary's having eaten lunch"[3].
>
> Target states
> It is important not to identify the Resultant-state of an event with its "target" state. If I throw a ball onto the roof, the target state of this event is the ball's being on the roof, a state that may or may not last for a long time. What I am calling the Resultant-state is different; it is the state of my having thrown the ball onto the roof, and it is a state that cannot cease holding at some later time". . . . "For a large number of verbs, there is a "typical" independently identifiable state that its object is in after the verb is true of it. If the state is transitory, then we come to use the adjective form of the past participle to stand for the transitory state instead of for the permanent resultant state. For example, anything that is cracked and then not repaired is in a state that is easy to identify—until the repair . . .[4]

The target state passives in (1) describe states that are in principle reversible, hence can be transitory, and this is what the adverbial *immer noch* ('still') requires. German *immer noch*, like English *still* is deviant when combined with predicates that describe states that are irreversible. The resultant state passives in (2) convey that a contextually salient event of the kind described by the participle

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[2] Parsons (1990), 234.
[4] Parsons (1990), 235.

is over by now, the reference or topic time. Assuming, as does Parsons, that there is a state corresponding to an event's being over, that state is irreversible and has to hold forever after. Once an event is over, it is over for good. You cannot undo an event's having happened. If the passives in (2) describe resultant states, we have an explanation for why they are incompatible with adverbs like *still*.

While the *immer noch* test works well in most cases, it is not absolutely reliable. Look at the following examples:

(3) a. * The feast is still over.
b. * The homework is still done.
c. # Melchiades is still dead.
d. # The potatoes are still cooked.

(3a) and (3b) are semantically anomalous and beyond repair. (3c) is fine when uttered in a context where dead people are assumed to come back to life. (3d) sounds pretty bad, yet in a context where cooked potatoes might turn raw again after a while, (3d) would feel fine. When a state passive passes the *immer noch* test, we can safely conclude that we have a target state participle. If it doesn't seem to pass, however, we have to make sure, we aren't looking at cases like (3c) or (3d). With a true resultant state passive, failing the *immer noch* test has to be a matter of meaning, not a matter of contingent fact.

Parsons proposed the resultant state interpretation as an interpretation for the English perfect construction. If this is right, we expect the state passives in (2) to share the aspectual properties of the verbal passives in (4), which is the case:

(4) a. The theorem has been proven.
b. The mailbox has been emptied.
c. The laundry has been dried.
d. The guests have been greeted.
e. The pots have been washed.

If the German resultant state passives in (2) are perfect constructions, we might be tempted to suspect that they might just be perfect forms of verbal passives with the auxiliary *werden* deleted:

(5) a. Das Theorem ist bewiesen. — Adjectival passive
The theorem is proven.

b. Das Theorem ist bewiesen worden. — Verbal passive, perfect
The theorem is proven gotten
The theorem has been proven.

The proposal that the passives illustrated in (2a)–(2e) are just perfect forms of verbal passives with the auxiliary *werden* deleted has surfaced from time to time

in the linguistic literature on German[5], yet does not seem tenable. Look at the following examples:

(6) a. Die Kinder sind (*immer noch) gewaschen.
The children are still washed

b. Die Kinder sind gewaschen worden.
The children are washed gotten
The children have been washed.

(6a) is a resultant state passive, and (6b) is the perfect form of the corresponding verbal passive. The crucial observation is that there is a subtle meaning difference between (6a) and (6b). (6a) is compatible with the children having washed themselves, (6b) is not. Somebody must have washed them[6]. Baker, Johnson, and Roberts (1989) take incompatibility with self-action to be evidence for the obligatory presence of an implicit impersonal pronoun realizing the verb's external argument in verbal passives. The meaning difference between (6a) and (6b) might then boil down to the obligatory presence of an unpronounced agent argument in (6b), but not in (6a). I conclude that resultant state passives have perfect aspect, but they are not just elliptical versions of perfect forms of verbal passives.

Resultant state passives are marginally acceptable with activity verbs:

(7) a. Die Katze ist schon gestreichelt.
The cat is already petted

b. Dieser Kinderwagen ist schon geschoben.
This baby carriage is already pushed.

(7a) and (7b) sound bizarre out of the blue, but as soon as we impose a 'job is done' or 'that's over' interpretation, they become fine. For (7a), imagine a scenario where it is my job to pet my neighbor's cat once a day while he is on vacation. A natural setting for (7b) would be a factory that produces baby carriages and employs workers whose job it is to push new baby carriages a few times to test their wheels.

Resultant state passives can also be formed from impersonal, idiomatic, and resultative constructions:

(8) a. Ihm sind die Leviten gelesen. Idiom
Him(dat.) are the Leviticus (nom.plur.) read
'He was scolded.'

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[5] See Rapp (1997) for more discussion of this point.
[6] Mchombo (1993) and Dubinsky & Simango (1996) report analogous facts about the stative construction in Chichewa.

b. Die Teekanne ist leergetrunken. — Resultative
The teapot is empty-drunk
'The teapot is drunk empty.'

c. Ihm ist geholfen. — Impersonal
Him(dat.) is helped.

The only verbs that aren't ever acceptable in any kind of state passive in German are certain stative verbs, including the old preteropresents:

(9) a. * Dieses Haus ist besessen.
This house is owned.

b. * Die Antwort ist gewusst.
The answer is known.

The class of verbs that can form target state passives in German coincides with the class of verbs that allow modification by *für*-PPs:

(10) a. Die Mutter hat die Geisslein für ein paar Stunden versteckt.
The mother has the little goats for a few hours hidden
Implies: the little goats were hidden for a few hours.

b. Wir werden das Boot für ein paar Stunden aufpumpen.
We will the boat for a few hours up-pump
Implies: the boat will remain inflated for a few hours.

(11) a. * Du kannst die Gäste für eine Stunde begrüssen.
You can the guests for an hour greet
'You can greet the guests for an hour'.

b. * Wir werden den Briefkasten für drei Tage leeren.
We will the mailbox for three days empty
'We will empty the mailbox for three days'.

When a PP headed by *für* modifies a verb and the result is grammatical, the only reading available is one where a claim is made about the length of a target state characterized by the verb. In Generative Semantics and more recent syntactic frameworks relying on head movement, similar facts in English have been taken as evidence for lexical decomposition of accomplishment verbs in the syntax[7]. At some level of syntactic representation, the relevant verbs would appear as decomposed into an eventive and a stative component, and consequently, PPs

[7] See e.g. Dowty (1979), who credits Robert Binnick with the earliest observation of those facts. Interestingly, the adverb *again* behaves differently from *für*-PPs. It can 'access' target states in compositional causatives as well.

could in principle operate on the stative component alone. The German data illustrated in (10) and (11) speak against a syntactic decomposition analysis of accomplishment verbs, however. On a syntactic decomposition analysis, it would be a rather odd fact that compositional causatives like *leeren* ('empty'), for example, do not allow other operations to see the target state they characterize: they do not have target state passives and cannot be modified by *für*-PPs. On the other hand, there are many causative verbs with non-compositional prefixes that have target state passives and can be modified by *für*-PPs. Take *auf-pumpen* ('pump up'), for example. Morphologically, *auf-pumpen* consists of the verb *pumpen* ('pump'), and the non-compositional prefix *auf-*. If *aufpumpen* had to be syntactically decomposed into a stative and an eventive component, the eventive component could be contributed by *pumpen*, but the stative component couldn't be contributed by *auf-*. In isolation, the prefix *auf-* doesn't have a denotation at all, hence couldn't possibly contribute a target-state property. In this case, then, the syntactic decomposition needed for accessing the target state property of *aufpumpen* would have to go right against that verb's morphological make-up. It seems, then, that we have to be able to access the target state property characterized by a verb without relying on syntactic decomposition. The following section explores a particular way of doing so.

2. Building statives

We have seen that when we classify verbs according to their ability or inability to make a target state property available to other operations, we find verbs that are traditionally classified as 'accomplishment verbs' in both subgroups. What is it about lexical representations that tells the semantic computation system that verbs are not all alike with respect to the availability of a target state property? We saw that syntactic decomposition doesn't seem an option because in many cases, the required decomposition does not match the morphological structure of the verbs in question. In Kratzer (1998), I proposed that those verbs that allow target state passives and modification by *für*-PPs are verbs that are constructed from stems that have both an event argument (the usual Davidsonian argument) and a target state argument[8]. Such stems can be used to build verbs or adjectives and should therefore be unspecified for syntactic category. The logical representation for the category-neutral stem *aufpump-* would then be (12):

(12) $\lambda x\, \lambda s \lambda e$ [pump(e) & event(e) & inflated(x)(s) & cause(s)(e)]

Following Marantz (1984) and Kratzer (1996), I am assuming that external arguments are not true arguments of their verbs[9]. Consequently, the stem

[8] Piñon (1999) drew the same conclusion on the basis of the behavior of German *für*-PPs.

[9] Crucially, I am not assuming that the non-state argument of adjectives is an external argument. In German, the overt subjects in copula constructions (including adjectival passives) can have the syntactic properties of external or internal arguments. I think this fact is best explained in terms of properties of the copula *be*, following Diesing (1992). According to Diesing, when the copula is a control copula, the overt subject of the construction is an argument of the copula that is linked to an unpronounced internal argument of the adjective via a control relation. When the copula is a

aufpump- has just a direct object argument in addition to its state and event arguments. Given (12), the logical representation for the phrase *das Boot aufpump-* ('pump up the boat') is (13):

(13) λsλe [pump(e) & event(e) & inflated(the boat)(s) & cause(s)(e)]

If the state argument can remain visible for a little while during a syntactic derivation, modifiers like *für*-PPs can see it and impose conditions on the states described. Target state participles can be created at this stage as well. Their logical representations are derived as follows[10]:

(14) Building a stative (first way, phrasal case)
Stem+object: λsλe [pump(e) & event(e) & inflated(the boat)(s) & cause(s)(e)]
Stativizer: λRλs ∃e R(s)(e)
Output: λs∃e [pump(e) & event(e) & inflated(the boat)(s) & cause(s)(e)]

According to (14), the stativity of target state participles is the result of existentially quantifying the Davidsonian argument of a category-neutral predicate that has an additional target state argument.

Lieber (1980) has argued that what makes adjectival participles adjectival in English and German, is a zero suffix attached outside of the visible participle morphology. This is why verbal and adjectival passive participles show the same allomorphy in those languages. If Lieber is correct, the stativizer in (14) might be the denotation of a zero suffix. Alternatively, we could think of the stativizer as a possible denotation for the syntactic category label 'A' itself, and we would then have adjectival participles of the form $[ge\text{-}....\text{-}en]_A$. On either proposal, the overt participle morphology would be meaningless, and its only function would be to license the absence of verbal inflection. If the external arguments of verbs are introduced by verbal inflection, as argued in Kratzer (1996), lack of verbal inflection implies absence of external arguments. This explains why in adjectival passives, the verb's external argument is truly missing. It's not that it has been eliminated or suppressed. It was never there to begin with. A parallel explanation can be given to the absence of accusative case, provided that it, too, depends on the presence of verbal inflection[11].

The stativizer introduced in (14) operates over phrases, rather than lexical items. This is not necessarily so, but it is a possibility, as I will show shortly.

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raising copula, the overt subject of the construction is an internal argument of the adjective that has moved into the subject position.

[10] Here and in what follows, I take logical representations to be expressions of an intensional typed λ-calculus with the basic types t (propositions), e (entities), s (states, events), and i (intervals of times). As for variables, 'x' ranges over entities, 'e' over eventualities, including events proper and states, 's' ranges over states, 't' over intervals of time, P over functions of type <st>, 'R' over functions of type <s<st>>, 'Q' over functions of type <e<st>>, and 'T' over functions of type <e<it>>.

[11] The implicit presence of the verb's external arguments in verbal passives might be linked to the auxiliary used in verbal passives. The assumption that the verb's external argument isn't realized or absorbed by the participle morphology is also supported by the fact that the same morphology—with all the same allomorphs—is used in active perfect constructions.

Assuming that Function Composition is freely available for combining the denotations of X^0 categories, the stativizer in (14) can combine with a mere stem as well:

(15) Building a stative (first way, lexical case)
Stem: λx λsλe [pump(e) & event(e) & inflated(x)(s) & cause(s)(e)]
Stativizer: λRλs ∃e R(s)(e)
Output: λx (λRλs∃eR(s)(e) (λsλe [pump(e) & event(e) & inflated(x)(s) & cause(s)(e)]))
= λx λs∃e [pump(e) & event(e) & inflated(x)(s) & cause(s)(e)]

Previous analyses have argued or assumed that adjectival participles are lexical, in the sense that they are derived by an adjectivization operation that affects lexical items, rather than phrases[12]. We have already seen data that establish that resultant state passives in German can be phrasal. In (8a) above, for example, a VP-idiom is adjectivized. In (8b), adjectivization has affected a syntactically complex resultative construction. The following example shows that target state participles can be phrasal, too:

(16) a. Die Haare waren immer noch schlampig gekämmt.
The hairs were still sloppily combed
The hair was still combed sloppily.

b. * Die Haare waren schlampig fettig.
The hairs were sloppily greasy
'The hair was greasy sloppily'

The manner adverb *schlampig* ('sloppily') cannot modify statives, as shown by the ungrammaticality of (16b). Since (16a) is grammatical, we have to conclude that the manner adverb can modify the stem *kämm-* before the construction is stativized. In other words, the grammaticality of (16a) shows that the stativization operation that created the target state participle in (16a) must have affected a phrase, rather than a mere lexical item.

An immediate consequence of the proposed way of deriving target state participles seems to be that target state passives should have event implications: If the boat is now pumped up, for example, there has to be a pumping event that caused its state of being inflated. Browsing through lists of adjectives that look like participles, we find quite a number without event implications, however. Those adjectives are sometimes said to be 'true' adjectives, as opposed to participles, the implication being that there is something unpredictable about them. While there are a number of apparent 'deverbal' adjectives that are not derived in a completely compositional way, there are many others that look like participles, are compositionally related to the corresponding verbs, yet lack the expected event implications. Take (17):

[12] Wasow (1977), Bresnan (1982), Levin & Rappaport (1986), and many others.

(17) The blood vessel was obstructed.

A blood vessel may be obstructed due to a malformation without there ever having been an event of obstruction. The vessel might just have grown that way. There might have been tissue that caused the obstruction. What is special about the verb *obstruct* is that it has stative, as well as eventive uses. Its stative use is illustrated in (18):

(18) Because of a congenital malformation, tissue obstructed the blood vessel.

Since the verb *obstruct* has stative and eventive uses, its Davidsonian argument has to be able to range over events (proper) as well as states. When the Davidsonian argument denotes an event, we are talking about a causal relation between that event and a state of obstruction. When it denotes a state, the causal relation is between two states, one of which might be the tissue's being where it is, for example. Verbs like *obstruct*, then, are not essentially different from fully eventive verbs like *pump up*. They, too, have a target state argument in addition to a Davidsonian argument. The only difference is that their Davidsonian argument can have states in its range. The same stativizer can existentially quantify the Davidsonian argument, thereby creating an adjective. Examples of other verbs with stative and eventive uses are *surround*, *cover*, *support*, *illuminate*, and experiencer verbs like *depress* or *worry*. As expected under the proposed analysis, those verbs have target state passives without event implications.

If target state participles are built using the stativizer introduced in (14), it follows that only those verbs can have target state passives that characterize states as part of their meaning. Surprisingly, not <u>all</u> verbs that characterize states as part of their meanings have target state passives. The most puzzling exceptions are causative verbs like *empty* or *dry*, which lack target state passives, as illustrated in (2c) and (2d) above. Looking at a database of about 1,500 German verbs, an interesting generalization emerges. The generalization is illustrated in (19):

(19) a. * Die Tür ist immer noch zu+gemacht.
The door is still closed+made

b. Die Tür ist immer noch geschlossen.
The door is still closed

Zumachen and *schliessen* are synonymous. The crucial difference between the two verbs is that *zumachen* is compositionally derived from *zu* ('closed', 'shut') and the light verb *machen* ('make'), while *schliessen* ('close'), is not a compositional causative. All causatives derived with the help of *machen* behave like *zumachen* in that they never permit target state passives. This suggests that the stems of causatives like English *dry* or *empty* might be derived by incorporation of the corresponding adjective into an unpronounced light verb stem, which would have to be the head of the resulting compound. Suppose now that light verb stems are specified for syntactic category, that is, they are V's from the very start. Assume furthermore that only category neutral stems can have both

a target state and a Davidsonian event argument. When the head of a stem is a V, that stem is itself a V, hence is not category-neutral. Causatives like *empty* or *dry*, then, cannot have target state passives since at no stage in their derivation is there a category-neutral stem involved.

If the derivation of target state participles I proposed is on the right track, we should find target state participles for unaccusatives as well. Within the current framework of assumptions, transitive and unaccusative stems have the same argument structure. Neither transitive nor unaccusative stems have external arguments. The stativizing operations I proposed above wouldn't be able to tell the difference, as long as there is a target state argument. As expected, there are target state 'passives' for unaccusative verbs:

(20) a. Der Arm ist immer noch geschwollen.
The arm is still swollen.

b. Der See ist immer noch zugefroren.
The lake is still frozen over.

On the current analysis, target state participles have state arguments, just like other adjectives. It is therefore not surprising that they behave like underived adjectives with respect to gradability and degree modifiers (see Kennedy and McNally 1999). Moreover, we can account for the scale structure of target state participles without having to say anything special about their relationship to the 'event structure' of the corresponding verbs. The scale structure of a target state participle is expected to be the same as the scale structure of the target state property characterized by the corresponding verb, since the verb and the participle have the same ancestry. They are derived from the same category-neutral stem.

If target state passives can be the result of stativizing a whole phrase, it should be possible that the target state property is not provided by the verb, but by other material within the VP, a manner adverb, for example. The following contrast demonstrates that target state properties can indeed be contributed by adverbs:

(21) a. * Meine Haare waren immer noch geschnitten.
My hairs were still cut
'My hair was still cut'.

b. Meine Haare waren immer noch schlampig geschnitten.
My hairs were still sloppily cut
My hair was still cut sloppily.

How come manner adverbs can provide target state arguments? The answer I want to consider is that adverbs, too, can describe target states and have target state arguments. They can express relations between states. This becomes clear once we think about the meaning of *sloppily*, for example. For (21b) to be true, some sloppy hair-cutting action must have caused the current state of my hair. Moreover, it seems that the state in question has to carry information about what caused it, that is, it has to indicate that it came into existence through sloppy

action. (21b) wouldn't be true, for example, if my hairdresser was working very sloppily when cutting my hair, yet against all odds, the result of his sloppy working style bore all the usual signs of careful action. The adverb *sloppily*, then, can have a target state interpretation of the kind given in (22a). Combining (22a) with the denotation of *cut my hair* yields (22b). Existential quantification of the Davidsonian argument by one of the stativizers produces the stative predicate (22c):

(22) a. $\lambda e \lambda s$ [action(e) & cause(s)(e) & indicate(sloppy(e))(s)][13].
b. $\lambda e \lambda s$ [action(e) & cause(s)(e) & cut(my hair)(e) & indicate(sloppy(e))(s)]
c. $\lambda s \exists e$ [action(e) & cause(s)(e) & cut(my hair)(e) & indicate(sloppy(e))(s)]

To summarize the discussion of target state participles, I have proposed that target state participles are derived by operators that retrieve target state properties from the constituents they operate on. Those target state properties are accessed through a state argument that is present at the relevant level of representation.

Resultant state participles are more widely available than target state participles. In fact, when a verb has a target state passive, it usually has a resultant state passive as well, as long as a 'job done' or 'that's over' reading is plausible. Take (23) as an illustration:

(23) Das Gebäude ist geräumt.
The building is evacuated.

As a target state passive, (23) implies that there are currently no tenants in the building. When understood as a resultant state passive, (23) does not have that implication. (23) could be uttered truthfully by a police officer who is reporting the successful evacuation of the building to his supervisor at a time when tenants have moved back in again. What the officer reports is merely that the job assigned to him is done.

The only kinds of verbs that are plain ungrammatical in resultant state passives (or state passives of any kind) are verbs like *wissen* ('know') or *besitzen* ('own'). I argued in Kratzer (1995) that those verbs do not have a Davidsonian event argument. The stativizer in a resultant state participle, then, seems to select predicates with an (unsaturated) Davidsonian argument. We have already seen that resultant state passives have perfect aspect, and this means that the derivation of a resultant state participle involves an aspectual operator:

(24) Building a stative (second way, phrasal case)[14]
Stem+ object: λe [prove(the theorem)(e)]
Stativizer: $\lambda P \lambda t \exists e[P(e) \& \tau(e) \leq t]$
Output: $\lambda t \exists e$[prove(the theorem)(e) & τ (e) $\leq$ t]

[13] The expression 'sloppy(e)' is of type t, hence expresses a proposition, that is, a set of possible worlds. For discussion of the indication relation, see Stalnaker (1984).
[14] Here, too, the lexical case is accounted for by Function Composition.

The stativizer in (24) maps properties of eventualities into properties of times, the usual job of an aspectual operator. In the example given, the output of stativization is a property of times that is true of any time t that is preceded by the running time $\tau(e)$ of an event e that is a completed event of proving the theorem. Whenever a time has that property, any later time is bound to have that property as well. This accounts for the observation that whenever a resultant state passive is true at a time, it is true forever after. It could not be otherwise.

Since resultant state participles can also be formed from stems with a target state argument, we have to think about what happens with that argument in those cases[15]. The aspectual stativizer in (24) operates over properties of eventualities. But if Function Composition is available (at least at the X^0 level), the stativizer could also operate directly over stems that have both a target state and a Davidsonian argument. However, we would then end up with a dangling state argument that we would not be able to get rid off, barring 'spontaneous' existential quantification or higher operators that might seek out a target state argument. It seems, then, that something should force existential quantification of target state arguments before aspectual operators come into play. A natural candidate is the syntactic category label 'V'. One possible denotation for 'V' could be an operator that existentially quantifies the target state argument—if there is one. The result would be a verbal passive participle that aspectual operators can work on. Assuming that aspectual operators must attach to Vs, existential quantification of target state arguments is forced.

The proposal that resultant state participles express properties of times (rather than properties of states), hence involve an aspectual operator, derives an important generalization about the possibility of *un*-prefixation:

(25) Any lexical (that is, non-phrasal) resultant state participle permits compositional *un*-prefixation. (Compositional *un*- expresses contradictory negation of the appropriate type.)

Here is a sketch of an explanation for (25). Phrasal state passives do not ever permit *un*-prefixation, a fact that can be accounted for by assuming that *un*- has to be attached in the lexicon, not in the syntax:

(26) a. * Ihm sind die Leviten ungelesen.
Him(dat.) are the Leviticus (nom.plur.) unread
'He was unscolded.'

b. * Die Teekanne ist unleergetrunken.
The teapot is un-empty-drunk
'The teapot is undrunk empty.'

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[15] The same question arises when *für*-PPs are contained in projections that become verbal at some later point in the derivation. Here, too, 'becoming verbal' seems to be linked to the binding of the target state argument.

With underived adjectives and target state participles, *un*-prefixation is unpredictable. Often, it is not acceptable at all (e.g. (27)), and if acceptable, it seems to express contrary, rather than contradictory negation (e.g. in (28)):

(27)	leer empty	* unleer unempty
(28) a.	gesund healthy	ungesund unhealthy
b.	bekümmert distressed	unbekümmert lighthearted

Underived adjectives and target state participles express relations between individuals and states, that is, they have denotations of type <e<st>>. Here is what would happen if compositional *un-* were to operate on such denotations:

(29)	empty (adjective)	$\lambda x \lambda s$ [empty(x)(s)]	
	un-	$\lambda Q \lambda x \lambda s$ [$\neg$ Q(x)(s)]	
	'unempty'	$\lambda x \lambda s$ [$\neg$ empty(x)(s)]	No!
	'the mailbox (be) unempty'	λs [$\neg$ empty(the mailbox)(s)]	No!

If compositional *un-* could operate on adjectives that express relations between individuals and states, there would be sentences like *the mailbox is unempty* that would be true (in a world) just in case there is a state that is not a state of the mailbox's being empty. These truth-conditions are utterly trivial, however. Just about any state is a state that is not a state of the mailbox's being empty. This is the reason, I suggest, why with underived or target state adjectives, *un-* is either ungrammatical or not compositional. With compositional *un-*, the output would be semantically anomalous. Now look what happens when *un-* appears as prefix of a (lexical) resultant state participle:

(30)	empty (verb)	$\lambda x \lambda e \exists s$ [empty(x)(s) & cause(s)(e)]
	emptied	$\lambda x \lambda t \exists e \exists s$ [empty(x)(s) & cause(s)(e) & τ(e) $\leq$ t]
	un-	$\lambda T \lambda x \lambda t$ [$\neg$ T(x)(t)]
	'unemptied'	$\lambda x \lambda t \neg \exists e \exists s$ [empty(x)(s) & cause(s)(e) & τ(e) $\leq$ t]
	'the mailbox (be) unemptied'	$\lambda t \neg \exists e \exists s$ [empty(the mailbox)(s) & cause(s)(e) & τ(e) $\leq$ t]

According to (30), the sentence *the mailbox is unemptied* is true (in a world) at a time t, just in case t is not preceded by an event of emptying the mailbox. Allowing for pragmatic determination of the time span we are looking at, these truth-conditions are right. The important point is that if the participles in resultant state passives denote properties of times, rather than properties of states, compositional *un-*prefixation yields a semantically acceptable result. I suspect that this is why *un-*prefixation is predictable for resultant state participles.

Resultant state participles are expected to be less adjective-like than target state participles under the current analysis. This seems to be so, given that resultant state participles are never gradable, for example, and they never permit the degree modifier *very*.

The analysis of target state and resultant state passives I explored in this short paper led me to posit three different types of passive participles in German that are all pronounced the same:

(31)	a.	$[ge....-en]_A$	Adjectival
	b.	$[ge....-en]_V$	Verbal
	c.	$[\,[ge....-en]_V$ Perfect$]_{Aspect}$	Perfect Aspect

As the reader might have guessed, the next step to take will be to find out whether the verbal participles of (31b) are also used in verbal passives with the auxiliary *werden*, and whether the perfect participles of (31c) are also used in active perfect constructions with the auxiliary *haben* ('have'). Execution of this project will have to be left for another occasion. There are too many bumps in the road and too many miles still to go.

References

Baker, M., K. Johnson, et al. 1989. "Passive Arguments Raised." *Linguistic Inquiry* 20: 219–252.

Bresnan, J. 1982. The Passive in Lexical Theory. *The Mental Representation of Grammatical Relations*. J. Bresnan. Cambridge, MIT Press.

Diesing, M. 1992. *Indefinites*. Cambridge/Mass., MIT Press.

Dowty, D. R. 1979. *Word Meaning and Montague Grammar*. Dordrecht, Reidel Publishing Company.

Dubinsky, S. and S. R. Simango 1996. "Passive and Stative in Chichewa: Evidence for Modular Distinctions." *Language* 72(4): 749–781.

Kennedy, C. and L. McNally 1999. From Event Structure to Scale Structure: Degree Modification in Deverbal Adjectives. *Proceedings of SALT IX*. Ithaca, CLC Publications: 163–180.

Kratzer, A. 1995. Stage-Level and Individual-Level Predicates. *The Generic Book*. G. N. Carlson and J. Pelletier. Chicago, Chicago University Press.

Kratzer, A. 1996. Severing the External Argument from its Verb. *Phrase Structure and the Lexicon*. J. Rooryck and L. Zaring. Dordrecht, Kluwer: 109–137.

Kratzer, A. 1998. *Aspect in Adjectival Passives*, Paper presented at WCCFL 17, February 20, 1998. University of British Columbia at Vancouver.

Levin, B. and M. Rappaport 1986. "The Formation of Adjectival Passives." *Linguistic Inquiry* 17: 623–662.

Lieber, R. 1980. On the Organization of the Lexicon, MIT, PhD dissertation.

Marantz, A. 1984. *On the Nature of Grammatical Relations*. Cambridge/Mass., MIT Press.

Mchombo, S. 1993. "A formal analysis of the stative construction in Bantu." *Journal of African Languages and Linguistics* 14: 5–28.

Nedjalkov, V. P. and S. J. Jaxontov 1988. The Typology of Resultative Constructions. *Typology of Resultative Constructions*. V. P. Nedjalkov . Amsterdam, John Benjamins: 3–62.

Parsons, T. 1990. *Events in the Semantics of English. A Study in Subatomic Semantics*. Cambridge/Mass., MIT Press.

Piñon, C. 1999. "Durative adverbials for result states." Paper presented at WCCFL 18, University of Arizona at Tucson.

Rapp, I. 1997. *Partizipen und semantische Struktur. Zu passivischen Konstruktionen des 3. Status*. Tübingen, Stauffenburg Verlag.

Stalnaker, R. 1984. *Inquiry*. Cambridge/Mass., The MIT Press.

Wasow, T. 1977. Transformations and the Lexicon. *Formal Syntax*. P. Culicover, T. Wasow and A. Akmajian. New York, Academic Press: 327–360.

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