

The different readings of *wieder* “again”: A structural account

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Summary

I will defend a purely structural account of the different readings arising from the German adverb *wieder* “again”. We will be concerned with the so-called repetitive/restitutive ambiguity. The claim is that the ambiguity can be resolved entirely in terms of syntactic scope. The theory assumes a rather abstract syntax. In particular, abundant use is made of Kratzer’s (1994) voice phrase, which plays a central role for the derivation of repetitive readings. One of the leading ideas of the analysis is that the structural accusative position has wide scope with respect to the agent relation expressed by the head of the voice phrase. If *wieder* precedes an accusative object, a repetitive reading is obligatory. If *wieder* follows the accusative object, two readings are available due to two possible positions of *wieder*. The analysis is an improvement of the proposal of Stechow (1995). It solves a number of questions left open there and considers a range of new data.

1. The scope of this study¹

In Stechow (1995) I defended an analysis of the different readings of the German adverb *wieder* “again” in terms of scope. The account was supposed to compete with proposals by Dowty (1979) and Fabricius-Hansen (1983), who account for the different readings by meaning postulates, though in different ways. Dowty assumes a lexical ambiguity for the adverb, whereas Fabricius-Hansen has a postulate that yields different readings depending on the kind of entity modified by the adverb. I will not repeat my earlier criticism. In appendix 1, I report some further criticism of Dowty’s (1979) meaning postulate, which is due to Ede Zimmermann. Furthermore, I will comment on a recent proposal by Fabricius-Hansen which is different from her earlier proposals but similar in spirit. In this study I will defend an analysis in terms of scope by applying it to a wider range of data. In addition, I try to combine this approach with Kratzer’s (1994) syntax and semantics of the voice phrase.

The starting point of the analysis given in Stechow (1995) is the following contrast in interpretation found in German:

¹The first version of this article was written for the occasion of the Krems conference on morphology (July 1992). I have changed some details, notably under the influence of Kratzer’s (1994) manuscript and a handout thereof from 1993. The main ideas have remained unaltered, however. I profited very much from discussing the material with Catherine Fabricius-Hansen, Sigrid Beck and Wilhelm Geuder. The latter wrote thorough comments on the first draft, which considerably improved its content. I also have to thank two anonymous referees of the *Journal of Semantics* for important comments.

- (1-1) a. Ali Baba Sesam **wieder** öffnete (restitutive/repetitive)
Subj Obj again opened
- b. Ali Baba **wieder** Sesam öffnete (only repetitive)
Subj again Obj opened

The two German sentences exhibit the word order of dependent clauses, which is commonly regarded as the underlying word order in German, at least as far as the position of the finite verb is concerned: the finite verb occupies a final position (Bierwisch (1963)). In this article, most of the examples will be verb-final sentences.

The semantic contrast between the two examples is now this: (1-1a) has both a *restitutive* (“inner”) and a *repetitive* (“outer”) reading, whereas (1-1b) has only a repetitive reading.² The restitutive reading presupposes that Sesame had been open sometime before, but it is not required that Ali Baba himself had opened it before; it is not even necessary that anyone had opened it before. On the other hand, the repetitive reading presupposes that Ali Baba himself had opened the mountain before.

The crucial fact in these examples is that the position of *wieder* relative to the object may disambiguate the readings: if *wieder* appears in front of the direct object,

²The two readings of (4-1a) may be disambiguated by means of intonation. Consider the following two out-of-the-blue utterances:

- (i) Ali Baba Sesam wieder ÖFFnete
(ii) Ali Baba Sesam WIEder öffnete

The first example exhibits nuclear stress and strongly suggests a restitutive reading. In the second example, we find the main stress on *wieder* and think of a repetitive reading. The correlation between stress and interpretation is not watertight, however. Consider the following text:

- (iii) a. Jetzt FÄHRT der Bus.
Now moves the bus
b. Jetzt bleibt er STEHEN. (Jetzt bleibt er wieder STEHEN)
Now Stands it still
c. Jetzt FÄHRT er wieder. (Jetzt fährt er WIEDER)
Now moves it again.
d. Jetzt bleibt er wieder STEHEN. (Jetzt bleibt er WIEDER stehen.)
Now stands it still.

In (a) the stress is contrastive, no doubt. The bus had been standing still. The first variant of (b) contrasts the stopping with the driving. The second variant is the restitutive reading of *wieder* “again”, where the stopping is presumably contrasted with the driving. In (c), we can have contrastive stress. If so, we have the preceding utterance/thought in mind. If we lay the stress on *wieder*, we have a repetitive reading and have the first utterance in mind. Thus, the contrastive/restitutive/repetitive distinction is not only a matter of the world. The interpretation must be anaphoric in some sense. The present paper ignores this issue entirely. Hopefully, no harm will arise from this laziness.

only the repetitive reading is available.

Stechow (1995) argues that this can be explained if we decompose the verb *öffnen* “to open” into “CAUSE + open”. This explanation can be traced back to Generative Semantics.³ The novelty of the proposal lies in the claim that the data are explained by a syntactic theory which assumes movement of arguments to Case positions (*vide*, e.g., Chomsky (1989)).

The classical treatment, which comes from Dowty (1979), assumes the same kind of decomposition, but the decomposition is not located in the syntax but rather in a conceptual semantic language only. In Dowty’s approach, the adverb *wieder* “again” would occupy the same position in the syntactic structure, but the adverb is lexically ambiguous, and a meaning postulate has the task of creating the restitutive reading.

The ambiguity of (1-1a) is explained by assuming the D-structure (1-2a), whereas the non-ambiguity of (1-1b) follows from the D-structure (1-2b):

- (1-2) a. SpecAgrO **again** [VP Ali Baba [SC **again**[SC Sesame open]] CAUSE]
CASE repetition restitutive
- b. **again** [AgrO-P SpecAgrO [VP Ali Baba [SC Sesame open] CAUSE]]
repetition CASE

To facilitate the reading, I have translated the German words or morphemes into their English counterparts. I will adopt this method without further comments in the following text as well. As I said before, the structures assume that German is head final. Hence, abstract verbs like CAUSE appear at the right side of the recursion. This feature of the analysis is not essential, however. To be sure, (1-2 a) is short for two D-structures, each containing only one occurrence of **again**. If **again** is generated in the higher position, it has wide scope with respect to CAUSE and we have the repetitive reading. In the lower position, **again** has narrow scope with respect to CAUSE and we have the restitutive reading. I have marked the two adverbial positions with the labels “repetition” and “restitution”.

At the surface, the subject *Ali Baba* moves to [Spec, AgrS]. The subject of the small clause, viz., *Sesame*, moves to [Spec, AgrO] in order to get the accusative. Obviously, the two movements are compatible with two different base positions of **again**. This is the explanation of the ambiguity in the example (a).

In the second example, the surface position of **again** makes it clear that it must be attached to a node higher than VP. Thus only the repetitive reading is possible.

The explanation relies crucially on certain syntactic assumptions: We have to localize the abstract morpheme CAUSE at an appropriate place in the syntax, and we have to assume an Accusative position “above” the CAUSE-VP. Furthermore, we have to make analogous assumptions with regards to an abstract BECOME morpheme for intransitive verbs of transition, because they show the same pattern in interpretation:

³See Dowty (1979) and the references given there.

- (1-3) a. die Tür **wieder** aufging (restitutive/repetitive)
the door again open-went
'the door opened again'
- a'. SpecAgrS **again** [VP[SC **again** [SC the door open]] BECOME]
CASE repetition restitution
- b. **wieder** die Tür aufging (repetitive)
again the door open-went
- b'. **again** SpecAgrS [VP[SC the door open] BECOME]
repetition CASE

A problem for this analysis is that it seems to presuppose that the subject moves to the nominative position [Spec,AgrS] for Case reasons. Syntacticians of German, however, generally assume that the nominative can be assigned VP-internally (den Besten 1985). This assumption is in conflict with Stechow's (1995) explanation, because a VP-internal case assignment, say, via agreement with an invisible expletive in the subject position, is compatible with a restitutive position of *wieder* (cf. Sternefeld (1985)):

- (1-4) a. Explⁱ **wieder** die Türⁱ aufging
b. SpecAgrS **again** [VP[SC **again** [SC the door open]] BECOME]
Expl repetition restitution

It follows that this cannot be the correct structure, or Stechow's (1995) explanation is not on the right track.

The examples show that Case theory is crucial for the explanation. We will therefore have to speak about the precise locations of the CASE positions in German.

Another problem is the status of abstract morphemes like CAUSE and BECOME. If they play a crucial part in the explanation of the facts, they must be located somewhere in the syntax. The result is some rather abstract syntactic representation, regardless whether we localize the distinctions directly in the syntax as Stechow (1995) did or recur to a logical language between the syntax proper and the interpretation as Dowty (1979) does. A genuine alternative is provided by Kratzer's Davidsonian approach, which we will discuss in section 3. There we can express the different readings without CAUSE. It will not be possible, however, to get rid of the BECOME-functor, as we will see.

The theory sketched here predicts that we will obtain the repetitive reading if *wieder* "again" precedes the object. Yet, there are certain result verbs which do not fall under this generalization. For example, consider the following sentence:

- (1-5) Als Anna **wieder** das Haus verließ, war es dunkel (repetitive/restitutive)
When Anna again the house left, was it dark

The restitutive reading is perhaps more naturally expressed by a sentence in which *wieder* follows the direct object, but (1-5) certainly can have that reading. Examples like this one were not considered in Stechow (1995), and we will have to talk about such cases. To anticipate the solution, we will argue that verbs of this class have a more complicated lexical decomposition which licenses two accusative positions, namely a repetitive and a restitutive one.

Another objection to a scope solution comes from Fabricius-Hansen, who points out on several occasions⁴ that such an enterprise has to face empirical difficulties having to do with verb pairs like *to fall/to rise*, which may be called *counterdirectional* antonyms.⁵ Consider the following pair of sentences:

- (1-6) a. das Barometer WIEDER fiel (repetition)
the barometer again fell
b. das Barometer wieder FIEL (restitution?)

Clearly, (1-6a) has a repetitive sense: the barometer fell after having fallen before. But what about the restitutive reading? Such a thing does not seem to exist. On the other hand, we have a very clear intuition about what (1-6b) means: the barometer fell after a rising. This reading is called *counterdirectional* by Fabricius-Hansen. The terminology is well motivated because the sentence does not seem to express the restitution of a state but rather continuation of motion or transition in “reversed direction”.

In this study I will try to subsume these examples under a “repetitive/restitutive” meaning of *wieder*. Roughly speaking, the account will be that a “restitutive” falling is the reaching of a degree of height which the barometer had had before.

Let me say at the end of this introduction that the aim of this article is not purely descriptive; if the approach is along the right lines, it tells us something about the German verb phrase and about the morphology/syntax/semantics interface.

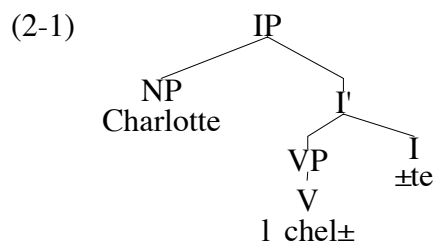
⁴Fabricius-Hansen (1980) and (1983).

⁵Fabricius-Hansen (1980) observes that English *again*, Danish *igen* “again”, Norwegian *igjen* “again” and German *wieder* “again” originally all meant “against”. Since the notion “against” denotes a contrast, it is plausible that “against” expressed a contrast in time for counterdirectional pairs like “to fall” and “to rise”. Thus, “again fall” could have meant something like “against what we had before, we have a falling now”.

2. The morphology/syntax interface

The general idea for organizing the syntax/morphology interface is due to Baker (1988). Words may be built in the morphology and subsequently inserted into D-structure, or they may be formed in the syntax by *head movement* or *incorporation*. Baker (1985b/1988) speaks of *modular morphology*.⁶ The idea is that morphology is a component or “module” of the grammar which checks the morphological well-formedness conditions, in particular morphological selection restrictions.

Consider the sentence *Charlotte lächelte* (“Carlota smiled”). A D-structure in the style of Stowell (1981) is something like the following tree:



The past morpheme *-te* is a bound morpheme which selects a verbal stem. Generally, an inflection of category *I(NFL)* selects a stem of category *V*.

For the following, let us distinguish between *morphological selection (min-selection)* and *phrasal selection (max-selection)*.⁷

In order to check phrasal selection of *YP* by *X*, we need the configuration

(2-2) $[X', YP X]$ or $[X', X YP]$,

and in order to check morphological selection, we need the configuration

(2-3) $[X Y X]$ or $[X X Y]$.

We may call structures of the latter kind *words* if we like. This terminology does not, however, imply that words are taken *in toto* from the lexicon or that they are the output of

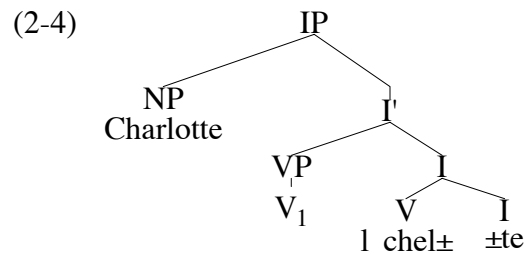
⁶As far as I can see, Borer's (1988) *parallel morphology* shares all essential basic assumptions with Baker (1985b). If I speak of a Bakerian approach, then that is because I became acquainted with this way of theorizing through Baker's work. A careful history of thought will presumably reveal many other sources, for instance, Generative Semantics and early work in Generative Grammar.

⁷In Chomsky (1986) phrasal selection is called categorial selection (c-selection). I don't take over this terminology because I consider such a way of speaking as misleading - a category is selected both in the morphology and in the syntax. The relevant difference is the complexity of the “bar-level”. This approach considers the maximal/minimal distinction to be primitive. This is not compatible with Chomsky's (1994) “bare phrase structure”, where the distinction is relationally reconstructed.

a component called *morphology* which is independent of the syntax proper. Some words are formed in the syntax, others are not. As far as they are morphological structures, they invariably satisfy the morphological well-formedness conditions, especially morphological selection.

We may assume that phrasal selection is satisfied at every level of grammatical representation. This is a version of Chomsky's (1981) projection principle. Baker (1988, p. 140) assumes that morphological selection is satisfied at S-structure, a principle called the *Stray Affix Filter*, which goes back to Lasnik (1981).

Suppose now that the finite morphology *-te* both min- and max-selects *V*; i.e., it selects $V^0 (=V)$ and $V^{max} (=VP)$. It follows that *V* must be incorporated at S-structure into *I(NFL)*. An appropriate theory of head movement will ensure that the S-structure of *Charlotte lächelte* must be something like the following tree:



This structure satisfies morphological and syntactic selection.

Note that morphological and phrasal selection are independent of each other; either may occur without the other. The following entries illustrate the point:

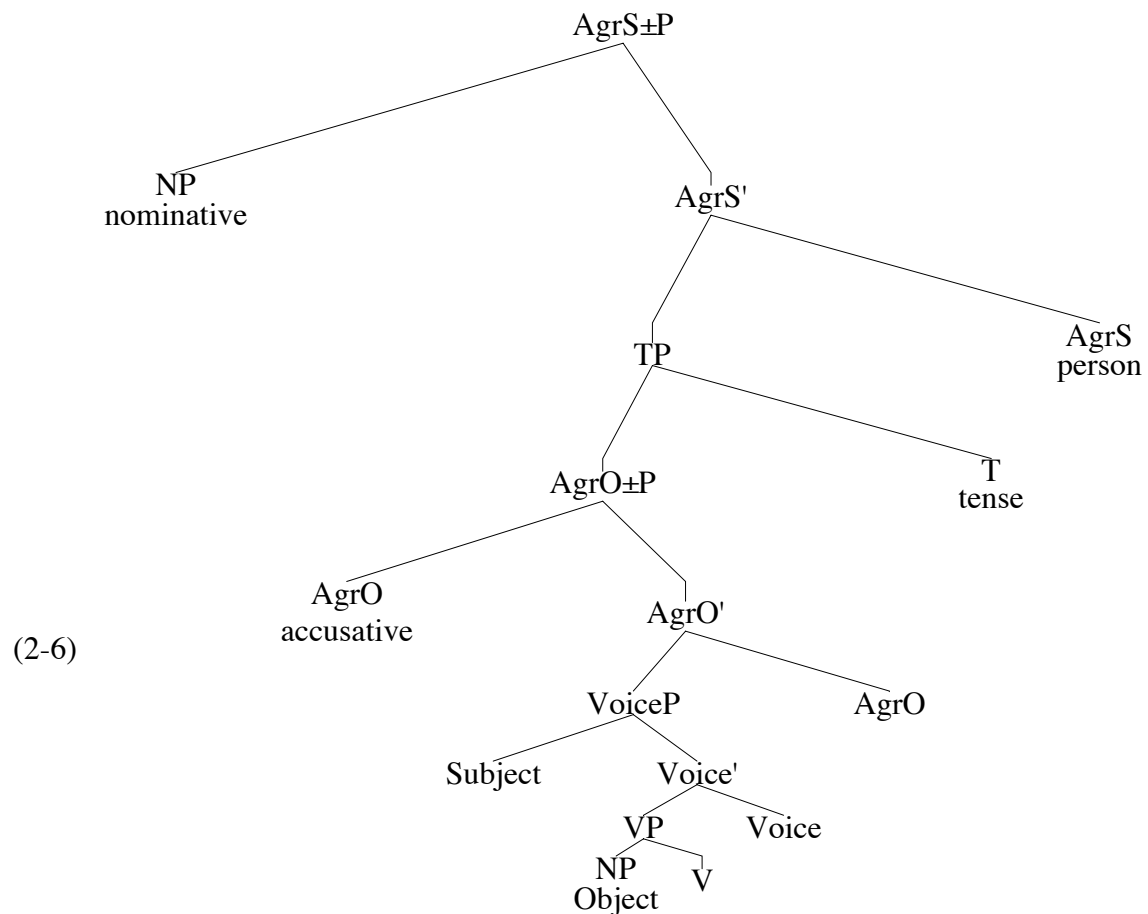
(2-5)

	bar-level selected		category selected
	min	max	
3.pers.sing.	+	+	V
accusative	+	-	N
lächel-	-	+	N
Charlotte	-	-	none

The interesting entry is the INFL-morpheme 3. person singular, which has conflicting selection requirements: Both a *V* and a *VP* are selected. The conflict is resolved by checking the phrasal selection (max-selection) at D-structure and the morphological selection (min-selection) at S-structure.

Recently, a lot of so-called functional nodes have made careers for themselves. For instance, the category *INFL* has been split into the nodes *T* (*tense*) and *Agr* (*agreement*). Many linguists do not stop here: they split *Agr* into *AgrS* (*agreement subject*) and *AgrO* (*agreement object*). Furthermore, a *Neg*-node has been introduced (cf. Pollock (1989) and Chomsky (1989)). In what follows, I will argue that the D-structure for German must

be something like the following tree:



The structure is more or less identical to that proposed in Chomsky (1989). The difference is the *Voice* projection, which is taken from Kratzer (1994). Kratzer assumes that the *Voice* node is somehow tied to inflection, and that there might be active or passive voice. Together with Stechow/Sternefeld (1988), I will assume that there is no morphological active/passive distinction in German. The voice head is either an empty node, or it is, as we will see in the next section, realized as a “passive” auxiliary such as *werden*, *kriegen/bekommen* or *sein + zu*. Semantically, the morpheme may be filled by certain thematic relations like **agent** (of the action under consideration) or **holder** (of the state under consideration), or it may be empty. Following Kratzer (1994), I will assume that the subject is generated in [Spec, *Voice*]. In other words, subjects are not generated in *VP*. This point will become clearer as soon as the theory is applied to examples.

It is important to distinguish the abstract voice morpheme from its semantic interpretation, which is not unique but is determined by the content of the verb. For instance, an “unaccusative” verb like *kommt* “comes” has an ACTIVE voice morpheme, but there is no thematic relation located in the *Voice* node.

[Spec, AgrO] is the structural accusative position. Kratzer (1994) assumes that the accusative position is the highest [Spec, V] under *VoiceP*. This might be a viable alternative

as well, but I was not able to check it in all details. The Case theory presented in section 4 will closely follow Sternefeld (1995).

3. Toward semantics and LF

In this section we will develop our theory in detail. Recall that we want to explain the following contrast in readings:

- (3-1) a. Ali Baba Sesam **wieder** öffnete (restitutive/repetitive)
Subj Obj again opened
b. Ali Baba **wieder** Sesam öffnete (only repetitive)
Subj again Obj opened

As said in section 1, the ambiguity of (3-1a) can be explained by assuming the D-structure (3-2a), whereas the non-ambiguity of (3-1b) follows from the D-structure (3-2b):

- (3-2) a. SpecAgrO **again** [_{VP} Ali Baba **again** [_{SC} Sesame open] CAUSE]
b. **again** [_{AgO-P} SpecAgrO [_{VP} Ali Baba [_{SC} Sesame open] CAUSE]]

Remember that (3-2 a) is short for two D-structures, each containing only one occurrence of **again**. If **again** is generated in the higher position, it has wide scope with respect to CAUSE and we have the repetitive reading. In the lower position, **again** has narrow scope with respect to CAUSE and we have the restitutive reading. At the surface, the subject *Ali Baba* moves to [Spec, AgrS]. The subject of the small clause, viz., *Sesame*, moves to [Spec, AgrO] in order to get the accusative. Obviously, the two movements are compatible with two different base positions of **again**. This is the explanation of the ambiguity in the example (a).

In the second example, the surface position of **again** makes it clear that it must be attached to a node higher than *VP*. Thus, only the repetitive reading is possible.

What is still missing is the semantics for the morphemes involved. That will be provided shortly.

The explanation assumes a small clause in order to account for the ambiguity. This is morphologically plausible for causative verbs derived from an adjectival base like *öffnen* “to open”, because the adjectival base could be considered as the head of the small clause, whereas the verb is formed by incorporation in the syntax. The same kind of ambiguity, however, also arises with verbs where we have no morphological indication of decomposition:

- (3-3) a. **Randi** den Bockhirsch **wieder** fing (restitutive/repetitive)
 Randi Bockhirsch again caught
 b. **Otto** **wieder** den Bockhirsch fing (only repetitive)
 Otto again Bockhirsch caught

The first sentence can mean two things: 1. Bockhirsch (= our cat) had been a prisoner before, and Randi caused him to be a prisoner again. This is the restitutive sense.
 2. Randi had caught Bockhirsch before and she caught him again. This is the repetitive reading. The second sentence has only the repetitive meaning.

These examples require decomposition of the verb *fangen* “to catch”. The D-structure accounting for the ambiguity of (3-3 a) is something like:

- (3-4) SpecAgrO [**again** [VP Randi [**again** [SC Bockhirsch PRISONER]] BECOME] CAUSE]

This is a highly abstract analysis of the verb in the style of Generative Semantics and Dowty (1979). One would certainly like to have a more concrete treatment requiring less decomposition. After becoming acquainted with Kratzer’s (1994) proposals, I thought that I could adopt them in order to obtain a syntactically simpler treatment. To anticipate the result, I was able to replace the CAUSE-functor with the thematic role **agent** located in the VoiceP, but I could not get rid of the BECOME-functor.

Let us start with the semantic analysis of the examples in (3-3). Consider the following formula:

- (3-5) **prisoner(Bockhirsch)(s)**

This means “Bockhirsch is in the state *s* of being a prisoner”. In other words, this is a Davidsonian approach which assumes “eventualities”, i.e., actions, events, and states. Following Kratzer (1994), I reserve the variable *s* for states proper. The variable *e* ranges over eventualities of any kind, i.e., states, activities, achievements, accomplishments and perhaps others. The variables may have indices, of course.

A note on semantic language is in order. I will not elaborate on every formal detail. The language will be an extensional typed language in the style of Gallin (1975). Since no intensional constructions are considered, I don’t need the type of worlds. Rather, the type *s* refers to eventualities (following Kratzer (1994)), *e* is the type of individuals, and *t* is the type of truth-values commonly assumed in the literature. Thus, the symbol **prisoner** is of type $\langle e, \langle s, t \rangle \rangle$.

The meaning of “Bockhirsch is again in the state *s* of being a prisoner” is represented as:

- (3-6) **again**(λs [**prisoner(Bockhirsch)(s)**])(*s*)
 = **again(prisoner (Bockhirsch))(s)**

As the formulae show, **again** is of type $\langle\langle s,t \rangle, \langle s,t \rangle\rangle$. Its meaning is given in (3-7), a definition inspired by Egg (1993):

- (3-7) Let P be a property of eventualities and let e be an eventuality.
 $\llbracket \text{again} \rrbracket(P)(e)$ is defined only if $\exists e' [\llbracket \text{MAX} \rrbracket(P)(e') = 1 \ \& \ e' < e]$.
 Where defined, $\llbracket \text{again} \rrbracket(P)(e) = 1$ iff $P(e) = 1$.

The definition presupposes that P is a property of eventualites. $<$ is the relation of temporal precedence. It is true of any two eventualities if the first is temporally located entirely before the second. $\text{MAX}(P)(e')$ means that e' is a maximal P -event. More formally,

- (3-8) MAX is a symbol of type $\langle\langle s,t \rangle, \langle s,t \rangle\rangle$. $\llbracket \text{MAX} \rrbracket(P)(e) = 1$ iff $P(e)$ and there is no e' such that e is a proper part of e' and $P(e') = 1$.

Thus, (3-6) can be read as “ s is a state such that Bockhirsch is a prisoner at s and there has been a maximal state of the same kind before”. Next, consider the restitutive reading of the sentence (3-9):

- (3-9) Bockhirsch **wieder** ein Gefangener wird
 Bockhirsch again a prisoner becomes

Using an “event version” of Dowty’s BECOME-functor and ignoring tense, we can formalize this as:

- (3-10) $\text{BECOME}(\text{again}(\text{prisoner}(\text{Bockhirsch}))) (e)$

BECOME is a symbol of type $\langle\langle s,t \rangle, \langle s,t \rangle\rangle$ and has the following meaning:

- (3-11) $\llbracket \text{BECOME} \rrbracket(P)(e) = 1$ iff e is the smallest event such that P is not true of the pre-state of e but P is true of the target state of e .

The pre-state of e is the state that holds immediately before the event e occurs. The target state is the state reached at the end of the event. Both notions are primitives of the theory. Similar notions are used by many authors working with events. For instance, the notion pre-state is used by Fabricius-Hansen (1994a/b). The term target state is used by Klein (1994) and Kratzer (1994). A more careful statement of the meaning rule would confine the BECOME-predicate to properties of events which have target states.

In an event approach, we do not need the predicate CAUSE anymore.⁸ Its role

⁸Given the simple extensional ontology used in this article, it is not possible to spell out the meaning of the

can be taken over partially by the thematic relation **agent**(x)(e), which means that x is the agent of action e. This predicate is more or less Dowty's (1979) predicate DO. Ignoring tense, the two readings of example (3-3 a) can now be expressed by the following two formulae:

- (3-11) a. $\exists e[\mathbf{again}(\lambda e[\mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{BECOME}(\mathbf{prisoner}(\mathbf{Bockhirsch}))(e)])(\mathbf{PAST}(e))]$
 b. $\exists e[\mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{BECOME}[\mathbf{again}(\mathbf{prisoner}(\mathbf{Bockhirsch}))](\mathbf{PAST}(e))]$

This semantics assumes a definite interpretation for the past tense in the spirit of Partee (1973):

- (3-12) PRES and PAST are symbols of type $\langle s,s \rangle$.
 a. $\llbracket \mathbf{PRES} \rrbracket(e)$ is defined only if e temporally overlaps with the speech time t_c .
 Where defined, $\llbracket \mathbf{PRES} \rrbracket(e) = e$.
 b. $\llbracket \mathbf{PAST} \rrbracket(e)$ is defined only if e is temporally located before the speech time t_c .
 Where defined, $\llbracket \mathbf{PAST} \rrbracket(e) = e$.

Thus, tenses impose restrictions for the temporal location of the event argument of the verb.

Given these meaning rules, we can calculate the following truth conditions for (3-11a) and (3-11b), respectively. $\llbracket (3-11 \ a) \rrbracket g$ is defined only if $g(e)$ is temporally located before t_c , where g is any variable assignment. If this is fulfilled, then $g(e)$ is an event with Randi as agent, and Bockhirsch is not a prisoner at the beginning of e, but he is a prisoner at the result state of e, and there has been such an event before. This is the repetitive meaning.

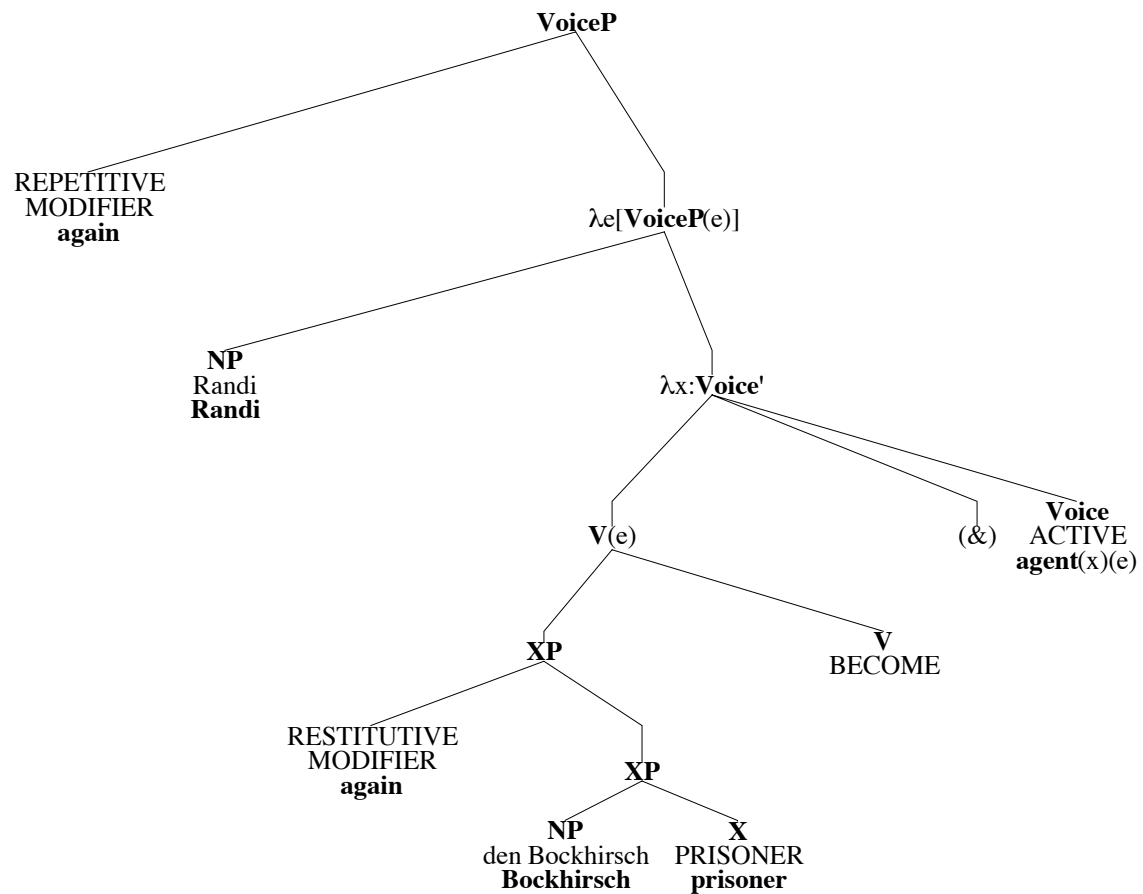
The restitutive meaning (3-11 b) can be restated in English as: $\llbracket (3-11 \ b) \rrbracket g$ is defined only if $g(e)$ is temporally located before t_c , where g is any variable assignment. If this is fulfilled, then $g(e)$ is an event with Randi as agent, and Bockhirsch is not a prisoner at the beginning of e but he is a prisoner at the result state of e, and Bockhirsch has been in the state of being a prisoner before.

If we ask ourselves where the semantic information which builds up the two meanings is located in the LF, the answer is pretty obvious for the most part. The thematic role **agent** is located in the head of the VoiceP. The repetitive positions of the adverb **again** must be higher than VoiceP, whereas the restitutive position must be below VoiceP. The abstract predicates **BECOME** and **prisoner** belong to the VP, and **BECOME** must have wide scope with respect to **prisoner**. Thus, a transparent LF for

CAUSE-predicate, for it is a relation between sets of worlds. $\mathbf{CAUSE}(p,q)$ holds in world w iff p and q are true in w and the counterfactual "if p were the case, then q would be the case" is true in w . This is Lewis' (1973) analysis, of course.

the VoiceP might have the following shape:

(3-13)



A remark on the notation is in order. At the nodes of the tree, I have indicated which semantic operations are needed to combine the meanings. I think the notation is self-explanatory. The crucial feature of the structure is that there are two modifier positions, indicated by the labels REPETITIVE and RESTITUTIVE MODIFIER, which trigger two different interpretations. If the subject and the object move to their Case positions, the D-position of *wieder* “again” is no longer uniquely identifiable from the surface, because the Case positions are outside of the *VoiceP*, hence the ambiguity.

The following list summarizes the two structures, omitting tense:

(3-14) a. Randi Bockhirsch [t_{SUBJ} [**wieder** [[t_{OBJ} PRISONER] BEC]] AGENT]

SpecAgrS	SpecAgrO	restitutive	
		again	
b. Randi	<u>Bockhirsch</u> [wieder [[t _{SUBJ} [t _{OBJ} PRISONER] BEC] AGENT]]		
		repetitive	
		again	

If, on the other hand, *wieder* appears in front of the direct object at the surface, it must be generated outside *VoiceP*, for instance, as an adjunct of *AgrO-P*. Thus, the D-structure of the unambiguous sentence (3-3b) is:

(3-15)	[_{AgrO-P} wieder [_{AgrO-P} AgrO [_{VoiceP} Randi [_{VP} <u>Bockhirsch</u> fang] ACTIVE]]]	
	again	catch

This structure can have only the repetitive reading, as an inspection of the tree (3-13) immediately shows: the information which **again** has to modify is (3-16a), and the result of the modification is (3-16 b), which is the subformula of (3-11 a) which determines repetitivity:

(3-16) a.	agent(Randi)(e) & BECOME(prisoner(Bockhirsch))(e)
	b. again[λe(agent(Randi)(e) & BECOME(prisoner(Bockhirsch))(e))](e)

If this explanation is on the right track, we have evidence that the direct object must move to a structural accusative position like *AgrO*; in other words, assignment of structural accusative is not possible *in situ*. Furthermore, in German this movement must have occurred at the surface and not at LF.⁹ Suppose *per impossibile* that accusative marking of the object's D-position, i.e., [Spec, X], were possible. Then, sentence (3-3b) could have the following S-structure, where head movement (and movement of the subject) is disregarded:

(3-17)	Randi	[_{VoiceP} t _{SUBJ}	[_{VP} [_{XP} wieder [_{XP} <u>Bockhirsch</u> prisoner]]	BEC]	ACT]
	NOM	restitutive	ACC	_____	
		again		catch	

This configuration has the restitutive reading. So it must be excluded as a possible surface structure for (3-3b). This follows from the assumption that the direct object has to move to [Spec, Agr-O] for the purpose of Case checking.

A certain drawback of the analysis might be its abstractness. We have decomposed the finite verb form *fang* "caught" into Voice + BECOME + PRISONER. The voice head is well motivated for the reasons given in Kratzer (1994). But there is

⁹In terms of Chomsky (1992), the movement must be before spell out.

no morphological evidence for a decomposition of the stem *fang*- “catch” into BECOME + PRISONER. The motivation is purely semantical - it is a relict of Dowty’s (1979) analysis and is justified because it gives the correct readings for the examples discussed. It might, however, yield too many possible readings, because it permits **again** to occur in a position between **agent** and BECOME, a possibility that doesn’t seem to be realized. Therefore, let us see whether we can find examples which require such a position for the adverb. A possible scenario could be this:

(3-19) Randi caught Bockhirsch. Then he escaped. Tristan caught Bockhirsch again.

The last sentence of this short story reports the repetition of the action of catching Bockhirsch: the action had occurred before, though with a different subject. If this is one particular reading of the sentence, then we can represent it by giving **again** intermediate scope. But we need not analyse the sentence that way. Taking the sentence in its restitutive sense is compatible with the scenario as well. So, it is hard to tell whether the intermediate scope reading is real. Thus, the semantic motivation for this additional scope possibility is weak, and morphologically it would certainly be more attractive to have only one verbal stem.

After becoming acquainted with Kratzer’s (1994) proposal, I thought I could attain a more concrete syntax by defining result verbs in her style. She would analyze the verb **catch** as a relation which holds of an individual *x* and an event *e* if *e* has a target state that has the property ‘*x* is a prisoner’. This is a meaning rule which does not use the BECOME-functor. I did not adopt this analysis, because I haven’t been able to express the restitutive reading with it. I will comment on the difficulties in appendix 1.

I should add some remarks on the location of the accusative position. In a number of publications, Diesing has argued that (referential) definite terms are scrambled out of the VP in German.¹⁰ To be sure, Diesing has in mind the classical VP, which we identify with Kratzer’s voice phrase. If Diesing’s claim about German were true, the examples (1a) and (1b) would be insufficient for determining the accusative position. Diesing is certainly right that referential definite terms (without contrastive stress) are scrambled out of a negated VP, but I am not convinced that this holds for unnegated VPs as well. Be that as it may, it is safer to consider examples with indefinite terms or quantifiers as direct objects.

- (3-20) a. Frank ein Fahrrad **wieder** reparierte (repetitive/restitutive)
Frank a bicycle again repaired
b. Frank **wieder** ein Fahrrad reparierte (repetitive)
Frank again a bicycle repaired

According to Diesing, existentially interpreted indefinites are in the VP. The data

¹⁰See Diesing (1990a), (1990b) and (1992).

behave as expected.

- (3-21) a. Frank jedes Fahrrad **wieder** reparierte (repetitive/restitutive)
 b. Frank **wieder** jedes Fahrrad reparierte (repetitive/restitutive?)

In (3-21b) the repetitive reading is certainly the prevailing one, but I am not sure that the restitutive reading is totally impossible. If this is the case, then I have no explanation for this fact.

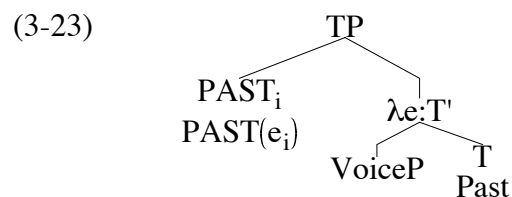
It is interesting to notice that the position of *wieder* supports Diesing's claim that pronouns are obligatorily scrambled out of the VP, because *wieder* in front of an accusative pronoun is quite unacceptable:

- (3-22) a. ??Chrigel **wieder** ihn gerade gebogen hat
 Chrigel again him straight bent has
 b. Chrigel ihn **wieder** gerade gebogen hat
 Chrigel him again straight bent has
 'Chrigel straightened it (=the power carrier) again'

We can derive this contrast if we assume that *wieder* occupies the accusative position in example (3-22a). For some reason, *ihn* has to be scrambled out of the "classical" VP.¹¹ Therefore, the sentence is ungrammatical. It is not entirely clear what the "classical" VP which Diesing has in mind is exactly in our approach. Assume it is the VoiceP.

In (3-22b) the pronoun has been scrambled out of the VoiceP. Therefore, it is no longer visible whether *wieder* attaches to VoiceP or to VP, and the sentence should be ambiguous between a repetitive and a restitutive reading. And so it is.

I will finish this section with a remark on the localization of tense at LF. The relevant projection of the tree has the following form:



Like Stowell (1993) I distinguish between morphological and semantic tense. The former is located in the head of TP and has no meaning. The place of the latter is the [Spec, TP]. We can represent it as PAST_i (or PRES_i) at LF, and we translate it into the

¹¹Diesing (1995) suggests that the reason is that pronouns are free variables which would be bound by her existential closure of the VP. Therefore, they could no longer be used anaphorically anymore. If this were the reason, they should be bound by a generic operator or an adverb of quantification in a scrambled position, because scrambled indefinite terms are always bound by such operators.

expression $PAST(e_i)$ (or $PRES(e_i)$), which is of type i . To this we then apply the event-abstract formed of the VoiceP by λ -abstraction over the event variable. Assume, e.g., that the node T' of the tree is interpreted by the formula (3-16b). The value of the entire tree would then be:

$$(3-24) \quad \lambda e(\mathbf{again}[\lambda e(\mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{BECOME}(\mathbf{prisoner}(\mathbf{Bockhirsch}))(e))](e))(PAST(e_i)) \\ = \mathbf{again}[\lambda e(\mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{BECOME}(\mathbf{prisoner}(\mathbf{Bockhirsch}))(e))](PAST(e_i))$$

If we existentially close the formula by some default procedure, we obtain the repetitive interpretation represented by the formula (3-11a).

4. Voice Phrases and Case Theory

In this section I will first present Sternefeld's (1995) theory of voice and case. Then, I accommodate it into the present framework. The reason for not adopting Sternefeld's theory as it stands is that he generates the subject VP internally, where VP is understood in the classical sense. Only at LF is the subject raised to [Spec, Voice]. This is not compatible with Kratzer's approach, and I will not follow Sternefeld in this respect.

There is another important difference between Sternefeld's and Kratzer's theories of voice phrases. For Kratzer, the voice node is always a functional category belonging to the inflection of a verb. For Sternefeld, an auxiliary may be the head of a voice phrase; this enables him to give a principled account of the different "case absorption" properties of the different passive constructions in German. Consider the following three verbal passive constructions:

- (4-1) Accusative passive (Sternefeld (1995: (79a/b)))
- a. Ich_{nom} schenke dem Fritz_{dat} einen Cognac
I give ART_{dat} Fritz ART_{acc} Cognac
 - b. Ein Cognac wurde pro_{acc} dem Fritz_{dat} (von mir) geschenkt
ART_{nom} Cognac was ART_{dat} Fritz (by me) given

The idea of the analysis is that the passive auxiliary *werden* licenses an accusative pro in [Spec, Voice], which is the implicit subject of the construction. Thus, there is no "accusative absorption" in the GB style. The accusative is rather assigned to the non-overt subject.

(4-2) Dative passive (Sternefeld (1995: (79c))

Der Fritz_{nom} bekommt pro_{dat} den Cognac_{acc} (von mir) geschenkt
ART_{nom} Fritz gets pro_{dat} ART_{acc} Cognac (by me) given

The auxiliary *bekommen* licenses a dative pro in [Spec, Voice]. As Sternefeld correctly points out, we would need three different lexical entries for the participle *geschenkt* if a passive theory in the GB style were correct: an active participle, a passive participle which absorbs the accusative Case, and a participle which absorbs the dative case. In Sternefeld’s theory, there is only one participle but there are different voice heads. The same holds for the so-called *zu*-passive in German:

(4-3) *Zu*-passive

- a. Der Fritz_{nom} hat den Motor_{acc} zu reparieren
ART_{nom} Fritz has ART_{acc} motor to repair
- b. Der Motor_{nom} ist pro_{acc} (von Fritz) zu reparieren
ART_{nom} motor is (by Fritz) to repair

According to Sternefeld, the voice auxiliary *sein* licenses an accusative pro as its specifier. Again, if the GB account of the passive were correct, we would need two entries for infinitives, one that doesn’t absorb accusative and another that does.

Before I go into the details of Sternefeld’s theory, let me indicate the syntax he assumes. This is the voice phrase for the dative passive example (4-2):

(4-4) [VoiceP e [VP pro_{dat} den Cognac_{acc} der Fritz_{nom} geschenkt] bekommt]

subject	object	ind. object	voice
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Sternefeld assumes that the indirect object is the most deeply embedded argument of the verb projection. Furthermore, structural Case (nominative, accusative, dative) can be assigned in an arbitrary way to the grammatical functions, but in the order mentioned and only once:

(4-5) **Case Assignment** (Sternefeld(1995: (75))

- “a. Within the projection of a verb, nominative can be assigned by default, accusative can be assigned if nominative has been assigned, and dative can be assigned if accusative has.
- b. Assignment of structural Case is possible only once; i.e. if two Cases in the domain of a verb are the same, one must be either a lexical Case or an agreement Case.”

Now, pro and Case have to be licensed. Let us consider the licensing of (referential)

pro first. According to Sternefeld, the only licensers in German are the passive auxiliaries *werden*, *bekommen/kriegen* and *sein*. As said before, the licensing position is their specifier position, i.e., [Spec, Voice].

(4-6) **pro Licensing** (Sternefeld (95: (74))

“The head of a passive voice phrase must license (via spec-head agreement) a pro that bears a subject theta role.”

“Theta role” is not used in the Davidsonian sense by Sternefeld. The term simply means that the phrase in question is a semantic argument of a verb. This principle entails that pro moves to [Spec, Voice] at the level where it is licensed, say S-structure.

As for Case licensing, the nominative is licensed by a tensed INFL, as commonly assumed in the literature.

(4-7) **Nominative Licensing** (Sternefeld (1995: (76))

“Tensed INFL can license nominative Case in its specifier position.”

The exact nature of the licensing of the accusative and the dative is left open by Sternefeld, but the licensing is linked to the direct and the indirect object GF. Putting all this together, this leads to the following further principles:

(4-8) **Licensing of accusative and dative Case** (Sternefeld (1995: (77))

- “a. (i) Accusative Case is licensed on a direct object theta role;
(ii) Dative Case is licensed on the indirect object theta role;
where the exact nature of the licensing head is left open. Thus, licensing can be executed either by default, or by V within the projection of a main verb, or by functional projections like AgrObj or AgrIndObj.
b. *werden_P* and *sein_Z* license accusative Case marking on the subject theta role.
c. *kriegen_P* and *bekommen_P* license dative Case marking on the subject theta role.”

The subscript P means that the auxiliary selects a participle. The subscript Z means that the auxiliary selects an infinitive prefixed by *zu*. We have been assuming throughout that accusative Case is licensed in [Spec, AgrO], and Sternefeld’s tensed INFL is our AgrS, of course. It follows that the S-structure of (4-4) is (4-9):

(4-9) [_{AgrS-P} der Fritz_{nom} ... [_{AgrO-P} den Cognac_{acc}
[VoiceP pro_{dat} [VP t_{dat} t_{acc} t_{nom} geschenkt] bekommt]]...]

Note that any other Case marking leads to ungrammaticality: the subject has to be

prodat, because *bekommen* licenses only a dative subject. Furthermore, it cannot be an open subject in view of pro Licensing which requires a pro as the subject of passive auxiliaries. Assigning accusative to the indirect object and dative to the direct object would violate the licensing principles for accusative and dative Case licensing. Thus, the Case distribution is described exactly correctly and in a very elegant and transparent way. In particular, no recourse to Case absorption is necessary, a significant progress, it seems to me. The semantics is reasonably clear as well. The pro subject of passive constructions is a generic pronoun (cf. German *man*) if the subject is not introduced by a *von* phrase (“by phrase”). In the latter case, pro is bound by the object of *von*. There are several possible ways to develop this further, but that is not my concern in this paper.

As it stands, the analysis isn’t complete yet for it doesn’t allow us to derive impersonal passives and infinitivals with PRO as the subject. Concerning impersonal passives, Sternefeld (1995) argues convincingly that they are logically independent from the principles governing “case absorption”. He assumes that nominative marking is optional and that we might have a pro without case in German. This pro is licensed by *werden_P* as well. Thus, the voice phrase for sentence (4-10a) is (4-10b), and the interpretation of the whole is (4-10c):

- (4-10) a. Hier wird nicht gelacht!
 Here is not laughed
 b. [_{VoiceP} pro [_{VP} gelacht] wird]
 c. $\neg \exists e[\mathbf{here}(e) \ \& \ \mathbf{agent}(pro)(e) \ \& \ \mathbf{laughing}(e)]$

As for PRO, it plays the same role as the nominative as far as Case assignment is concerned. In other words, we can assume PRO for any GF we like and then proceed as if nominative had been assigned. But the licensing conditions are different, of course. PRO is licensed as the subject of an infinitival and perhaps of other non-verbal projections.¹²

Let us accommodate Sternefeld’s theory to our assumptions now. The first modification is that passive auxiliaries express the **agent** relation. Furthermore, the pro subject is base generated in [Spec, Voice]. It follows that the domain for structural Case assignment cannot be the narrow VP anymore; the voice projection has to be included (together with the different projections due to decomposition). Furthermore, we assume that AgrO selects Voice. I think the revisions are clear enough. Instead of writing them down formally, I illustrate them with the analysis of the dative passive example. The voice phrase is this:

- (4-11) [_{VoiceP} pro_{dat} [_{VP} [_{VP} den Cognac_{acc} der Fritz_{nom} geschenkt] BECOME] bekommt]

¹²Kratzer (1994) argues that the subjects of APs may be PRO.

Recall that the voice head *bekommt* translates into **agent**. Making all the parameters explicit, this structure therefore receives the following interpretation:

(4-12) **agent**(pro)(e) & BECOME(λs [**given**(Fritz)(**the cognac**)(s)])(e)

given(Fritz)(**the cognac**)(s) means that s is a state in which the cognac is owned by Fritz. As before, *Fritz* is the lowest argument of the verbal decomposition. It is the indirect object of the voice projection. Note that the licensing principles do not forbid that an indirect object has a nominative, because the nominative is not linked to any special grammatical function. *Fritz* could have the dative Case as well, but then no dative would be left for the pro subject.

It doesn't come as a surprise that the interplay of *wieder* with the direct object is exactly as before:

- (4-13) a. der Fritz den Cognac **wieder** geschenkt kriegt (restitutive/repetitive)
 the Fritz_{nom} a Cognac_{acc} again given gets
 b. der Fritz **wieder** den Cognac geschenkt kriegt (repetitive)

To illustrate the two senses, Fritz had a Cognac which he gave to Mary. Mary forgot who the donator was and gave it to Fritz at another occasion. Thus, Fritz got the Cognac back. This is the restitutive sense. The Cognac was his birthday present from Mary. At Christmas, Mary gave Fritz the same Cognac as a present. This is the repetitive meaning.

The explanation of the ambiguity is as before. The direct object moves to the accusative position in order to license the accusative Case. If *wieder* precedes the direct object, the adverb must be higher than VoiceP, and we obtain a repetition.

5. *Wieder* and the unergative/unaccusative distinction

Following Perlmutter (1978), it is widely assumed in the literature that the subjects of unaccusative verbs are D-objects.¹³ A well-known property of these verbs is that they don't passivize. In the present context, it is interesting to observe that unaccusatives exhibit the repetitive/restitutive ambiguity with respect to *wieder*, whereas this ambiguity is not observed with the so-called unergative verbs. In other words, we obtain two readings when *wieder* surfaces after the subject of an unaccusative verb, but only one when it occurs in front of the subject of an unaccusative verb. Let us see how our theory explains these facts.

¹³The history of the "unaccusative hypothesis" is rather complicated. *Vide* Pullum (1991), chapter 18. The first explicit formulation of the hypothesis seems to be contained in a letter from Paul Postal to David Perlmutter on October 20, 1975.

My first remark concerns the inability of unaccusatives to undergo passivization. Under the present account this follows from the decomposition of these verbs; they are all verbs without an agentive component, and passives, at least German passives, have an **agent**-component (or at least a **holder**-component) located in Voice. If we did passivize unaccusative verbs, they would change their meaning drastically, but passivization should not be a meaning changing operation. To be concrete, consider an example.

- (5-1) a. Der Briefträger kommt
 the postman comes
 b. $\exists e[\text{BECOME}(\text{here}(\text{the postman}))(\text{PRES}(e))]$

(b) is my logical analysis of (a). There is no **agent** in this representation. Therefore, we need either no voice morpheme in the lexical representation or a semantically empty one. If we choose the former option, it follows that the S-structure of (5-1a) is (5-2):

- (5-2) $[_{\text{AgrS-P}} \text{the postman}_i \text{ PRES } [_{\text{VP}} [_{\text{XP}} t_i \text{ here}] \text{ BECOME}]]$

Suppose now we had an impersonal passive:

- (5-3) *(weil) gekommen wird
 because come is

According to our previous assumptions, the voice phrase and its interpretation are as follows:

- (5-4) a. $[_{\text{VoiceP}} \text{pro } [_{\text{VP}} [_{\text{XP}} e \text{ here}] \text{ BECOME}] \text{ werd-}]$
 b. **agent**(pro)(e) & **BECOME**(**here**(?))(e)

It is not at all clear what the empty subject *e* of **HERE** (not an event variable!) could be or how it is interpreted. The trouble is indicated by a question mark in the formula. Note that, contra Sternefeld (1995), no raising is possible in our analysis, because the *pro* subject is a semantic argument of **agent**. Raising would violate the Theta Criterion.

The formalization assumes the following meaning rule for **here**:

- (5-5) $\|\text{here}\|(x)(s) = 1$ iff *s* is the state of *x*'s being at the place of the utterance.¹⁴

The main role of the state parameter seems to be to temporally determine the predicate of being here.

¹⁴A proper formulation of the meaning rule requires a theory of context dependency, of course.

We will now try to explain the second observation, which was that many (all?) unaccusatives exhibit the repetitive/restitutive ambiguity while unergatives do not. Consider an unaccusative verb first.

- (5-6) a. der Briefträger **wieder** kam (repetitive/restitutive)
the postman again came
b. **wieder** der Briefträger kam (only repetitive)
again the postman came

The postman had come before, and he came again. This is the repetitive reading. The postman had been here before, then he went away, and finally he came back. That's the restitutive reading. The first sentence has both meanings, the second only the first.

Next, we have a look at an unergative verb:

- (5-7) a. Irene **wieder** geigt (repetitive)
Irene again played the violin
b. **wieder** Irene geigt (repetitive)

The lack of the restitutive sense is due to the fact that the decomposition of *geigen* "to play the violine" doesn't contain a BECOME-functor whose scope interacts with that of *wieder*. But what about the decomposition into **agent + violin-playing**? In (5-7a) the subject has moved to the [Spec, AgrS] for Case reasons, and thus there are two D-structures with two interpretations:

- (5-8) a. [VoiceP Irene [VP **wieder** geig-] agent]
agent(Irene)(e) & again(violin-playing)(e)
b. **wieder** [VoiceP Irene [VP geig-] agent]
again(λe .agent(Irene)(e) & violin-playing(e))(e)

Perhaps (5-8a) could be used in a situation where, for some compelling reason, no one could play the violin for a longer period of time. Irene was the first one who played the violin again. Hence, she "restituted" the activity of violin playing in some sense. The matter needs more investigation, and I will leave the question of whether this reading exists open.

Here are some more examples of unaccusative verbs, all of which exhibit the repetitive/restitutive ambiguity if *wieder* follows the subject:

- (5-9) a. das Flugzeug **wieder** landete (repetitive/restitutive)¹⁵
the aircraft again landed
b. **wieder** das Flugzeug landete (only repetitive)
again the aircraft landed

¹⁵I owe these examples to Manfred Bierwisch.

The repetitive meaning is that the aircraft repeated a landing. The restitutive meaning is that it went down to earth again, after having been in the air (this might be its first landing). Sentence (5-9a) has both meanings, sentence (5-9b) has only the repetitive one.

- (5-10) a. das Barometer wieder fiel (repetitive/restitutive)
 the barometer again fell
 b. **wieder** das Barometer fiel (only repetitive)
 again the barometer fell

The barometer had been down, went up, and then fell again. It is not required that it had been falling before, but it must have risen in order to have become high. This is the restitutive reading. The barometer had fallen before and went down further. This is the repetitive reading. For sentence (5-10a) both meanings are available. Sentence (5-10b) has only the second one.

The analysis is straightforward if we decompose *landen* “to land” as BECOME + *on the ground* and *fallen* “to fall” as BECOME + *down*. The repetitive meaning of (5-10a) is then represented by the formula (5-11a), whereas (5-11b) represents the restitutive reading of (5-9a):

- (5-11) a. $\exists e[\text{again}(\text{BECOME}(\text{down}(\text{the barometer})))](e)$
 b. $\exists e[\text{BECOME}(\text{again}(\text{on-the-ground}(\text{the aircraft})))](e)$

I think these representations are almost satisfactory, but the analysis is too simple after all. The meaning of “to fall” should bring out the idea of *continuous* change of position and should not be analysed in absolute terms: at each moment of a falling, the falling subject is *lower* than it was at the preceding moment. I will take up this aspect of the verb’s meaning in section 9.

To resume the discussion of this section, the behavior of *wieder* with respect to the subject of unaccusatives can be explained if they have the following properties:

- (5-12) a. Unaccusative verbs do not project Voice (they are voiceless).
 b. Unaccusative verbs have the semantic structure BECOME + stative.

It could be that the second hypothesis is too strong; there might be purely stative unaccusatives. The important generalization is the first one, for it entails that unaccusatives never “govern” accusative Case, since the latter is assigned in the voice phrase. One might think that this result is empirically empty, because intransitive verbs don’t have an object, and therefore there is no GF that could bear accusative Case. This, however, is not so. The following contrast, which goes back to an observation

made in Carrier & Randall (1992), shows that accusative marking has nothing to do with transitivity:

- (5-13) a. Olga betete ihren Sohn gesund
 Olga prayed her son healthy
 b. *Die Preise fielen den Aktionär arm
 The prices fell the stockholder poor

Note first that there is no semantic reason for the deviance of (5-13b), for while the first sentence may be paraphrased as “Olga’s praying had the result that her son became healthy”, the meaning of the second sentence can be rendered as “The falling of the prices had the result that the stockholder became poor”.

In our theory, the contrast is an outcome of Case theory. *Beten* “to pray” is an agentive verb and projects a VoiceP. We have to make sure that the subject of the embedded small clause counts as a direct object of the VoiceP; then, it can bear accusative Case, which is checked in [Spec, AgrO]. *Fallen* “to fall” is unaccusative and doesn’t project VoiceP. Hence, we cannot have an accusative object, and (5-13b) is ruled out. In a way, our theory encodes “Burzio’s generalisation”, which says that a verb governs the accusative if it has an external theta role (Burzio (1981)). AgrO selects Voice. Unergative verbs have voice, but unaccusative verbs have none. Therefore, unergative verbs can “govern” the accusative, whereas unaccusative verbs can’t.

The reader may check for himself that the subject of a result small clause behaves exactly like other direct objects with respect to *wieder*. This is as it should be because our decomposition of result verbs and unaccusative verbs is modelled after small clauses - they are visible decompositions.

6. Two classes of result verbs

So far, our theory predicts that we will obtain the repetitive reading if *wieder* “again” precedes the object. In this section I will investigate a class of result verbs which do not fall under this generalization. For example, consider the following sentence:

- (6-1) Als Anna **wieder** das Haus verließ, war es dunkel (repetitive/restitutive)
 When Anna again the house left, was it dark

The restitutive reading is perhaps more naturally expressed by a sentence in which *wieder* follows the direct object, but (6-1) certainly can have that reading.

Willi Geuder (personal communication) observes that verbs which behave in this way (or at least some of them) have the semantic property that the qualification of the target state speaks about the object *and* the subject of the verb. On the other hand,

the telic verbs discussed in the preceding sections all had the property that only the object was a “constituent” of the target state. I will show that we can explain the new behavior of *wieder* by mirroring the difference between the two classes of verbs in the semantic decomposition. The solution is largely based on suggestions by Willi Geuder.

To see what is happening, let us explicitly compare the telic verbs *öffnen* “to open” and *verlassen* “to leave”.

- (6-2) a. Er öffnete die Tür (RESULT: Object is open)
“He did an action whose result was that the door was open”
b. Anna verließ das Haus (RESULT: Subject is outside Object)
“Anna did an action whose result was that she was out of the house”

Let us call verbs of the first class *object result verbs*, and verbs of the second class *holder+object result verbs*. Other verbs of the latter kind which allow a restitutive reading with *wieder* in pre-object position are found in the following list (the examples come from Willi Geuder):

- (6-3) a. weil er **wieder** seine Sachen zurückbekam
(RESULT: Subject has Object)
because he again his belongings back got
“There was an event whose result was that he had his belongings back again”
b. daß er nach dem Unfall **wieder** eine positive Einstellung zum Leben
bekommt (RESULT: Subject has Object)
that he after the accident again a positive attitude towards life gets
c. daß sie nach dem Schlaganfall **wieder** das Gehen lernt
(RESULT: Subject masters Object)
that she after the stroke again the going learns
d. daß er **wieder** den Hut aufsetzte
(RESULT: Subject has Object on his head)
that he again the hat on put

An anonymous referee gave me the following interesting minimal pair:

- (6-4) a. weil er **wieder** seine Sachen zurückgab (repetitive/restitutive)
because he again his belongings back gave
b. weil er **wieder** seine Sachen zurücksendete (only repetitive)
because he again his belongings backsent

The referee comments on these data, “Notice that *zurückgeben* implies a change of possession (subject and object are involved), whereas *zurücksenden* arguably only implies a change of location of the object.” It is interesting to observe that the contrast

disappears if we make the addressee of the giving/sending explicit:

- (6-5) a. weil er dem Fritz **wieder** seine Sachen zurückgab (repetitive/restitutive)
because he ART_{dat} Fritz again his belongings back gave
b. weil er dem Autor **wieder** sein Manuskript zurücksendete
(repetitive/restitutive)
because he ART_{dat} again his manuscript back sent

The generalization that emerges is that when *wieder* precedes the object, we can have the restitutive reading only in those cases in which a “subject” enters the description of the target state. This subject may be identical with the agent (Geuder’s examples), or it may be different (the referee’s examples). The subject of a state is always a **holder**. This is why I speak of *holder+object result* verbs.

Vergessen “to forget” and *verlieren* “to lose” should behave in the same way, but for some reason they do not fit into the picture, again an observation by Geuder. The anonymous referee observed that the situation is slightly more complicated: there is at least one use of *verlieren* where we find a restitutive reading with *wieder* preceding the direct object. This is his example:

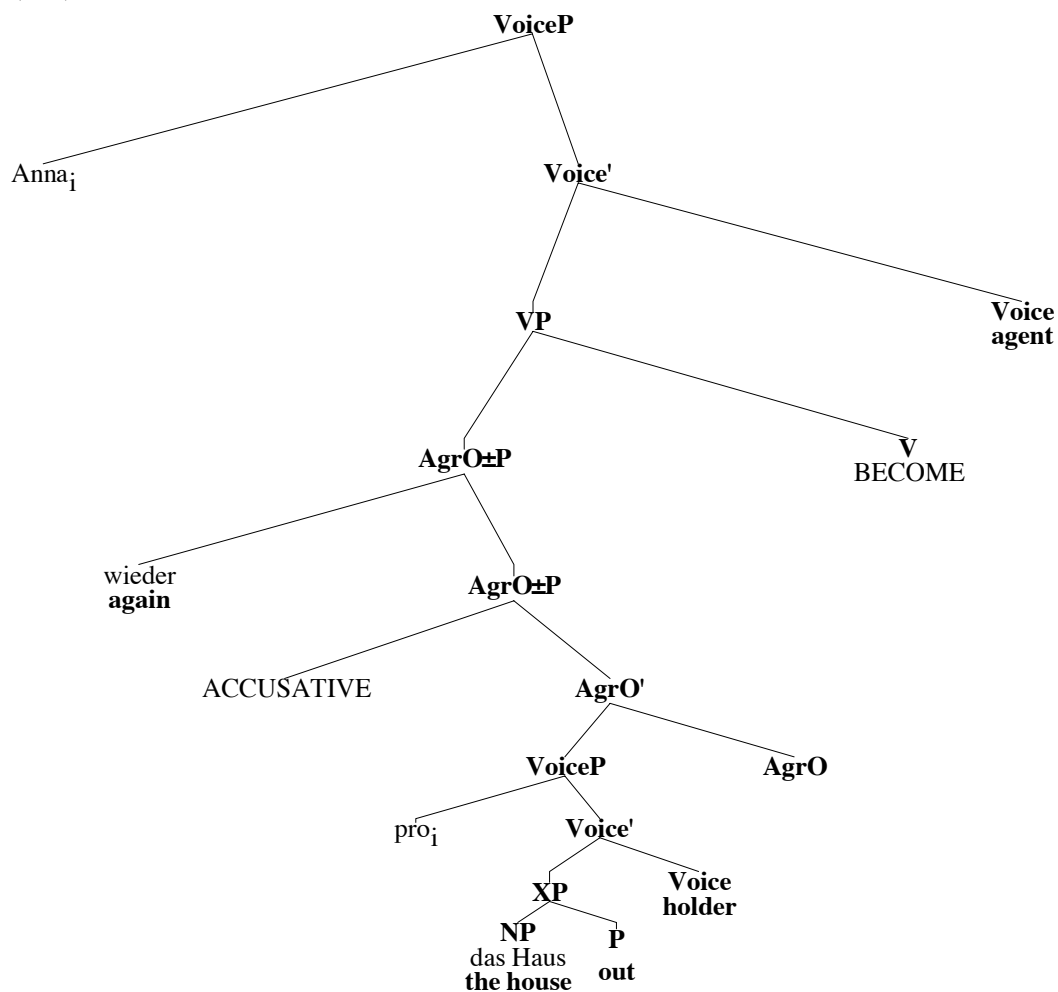
- (6-6) Zwar habe ich im Elsaß fünf Kilogramm zugenommen, aber ich habe schon
Indeed have I in-the Elsaß five kilogramms gained, but I have already
wieder zwei Kilo verloren.
again two kilos lost

In order to explain why these verbs allow a restitutive reading even if *wieder* precedes the object, let us have a closer look at their meaning. Consider the example with *verlassen* “to leave” again.

- (6-7) a. Anna verließ **wieder** das Haus
Anna left again the house
b. $\exists e[\text{agent}(\mathbf{Anna})(\text{PAST}(e)) \ \& \ \text{BECOME}(\lambda s[\text{again}(\lambda s[\text{out}(\mathbf{the\ house})(s) \ \& \ \text{holder}(\mathbf{Anna})(s)])](e))]]$

Recall that our assumptions on Case marking state that accusative Case is assigned to a GF of VoiceP. This suggests that the accusative of the object *das Haus* is not assigned in the VoiceP headed by **agent** but rather in a subordinate VoiceP headed by **holder**. In order to make our Case theory work, we have to complicate the syntactic decomposition of the new class of result verbs. The relevant part of the structure could be this:

(6-8)



The object moves to the Accusative position where its Case is checked. *Wieder* is attached to *AgrO-P*. Since *AgrO* is semantically empty, this structural position is equivalent to an adjunction to the lower *VoiceP* and we obtain the restitutive reading as desired.

The structure presupposes that a voice phrase is not necessarily dominated by *AgrO-P*. To be sure, *AgrO* m-selects *Voice*, but nothing forces us to have that node in the syntax. It is inserted optionally. The analysis of unergative verbs, which have an accusative object only if there is a small clause, motivates the same assumption. Furthermore, this optionality is needed to derive the repetitive reading of sentence (6-9a), which is (6-9b):

- (6-9) a. Anna das Haus WIEDER verließ
b. $\exists e[\text{again}(\text{PAST}(e))(\lambda e[\text{agent}(\text{Anna})(e) \ \& \ \text{BECOME}(\lambda s[\text{out}(\text{the house})(s) \ \& \ \text{holder}(\text{Anna})(s)])(e))]]]$

An inspection of the formula shows that *wieder* must be base generated higher than the **agent** projection, which is the highest VoiceP in the tree (6-8). Since the direct object precedes *wieder*, it either has been moved to the [Spec, AgrO] position determined by the highest VoiceP, in which case the lower AgrO-P is missing, or it has been scrambled from the lower [Spec, AgrO] to an adjunction position and the higher AgrO-P is missing.

Finally, let me quote a critical observation of an anonymous referee:

“I find that quantified NPs resist the position in question. A sentence like *weil er wieder fast jedes Buch zurückbekam* seems to have the repetitive reading only, in contrast to *weil er fast jedes Buch wieder zurückbekam*. If right, this means that the Accusative position in (6-8) is not a full DP position.”

I am not sure about this. It seems to me that the sentences

- (6-10) Ich habe inzwischen **wieder** jedes Buch/die meisten Bücher zurückbekommen
I have meanwhile again every book/most books backgot

can have the restitutive reading.

7. *Wieder* in predicative and attributive participial phrases

The point I want to make in this section is that the readings observed with *wieder* in participial phrases suggest that attributive participial phrases of unergative verbs *may* have passive voice, whereas there is no passive in predicative participial phrases. The voice projection is responsible for the repetitive/restitutive ambiguity.

The data to be analyzed are:

- (7-1) a. Der Raupenschlepper ist **wieder** repariert (restitutive/repetitive?)
the power carrier is again repaired
- b. ?Der Raupenschlepper ist **wiederum/erneut/noch einmal/ein**
the power carrier is again_{rep}/again_{rep}/once more/
weiteres Mal repariert (only repetitive)
one more time repaired
- c. Der Raupenschlepper ist **wiederum/erneut/noch einmal/**
the power carrier is again_{rep}/again_{rep}/once more/
ein weiteres Mal repariert worden (only repetitive)
one more time repaired been

The predicate in these sentences is what German grammarians call a *Zustandspassiv* “statal passive”. A term more familiar in Generative Grammar is *adjectival passive*. Here, *wieder* seems to have only the restitutive reading. An anonymous referee has pointed out to me that certain German adverbs have only the repetitive reading: *erneut*, *noch einmal* and *ein weiteres Mal*, among others. These adverbs combine poorly with the statal passive. The contrast is observed even more sharply if we modify an underived adjective:

- (7-2) a. Der Raupenschlepper ist **wieder** heil
the power carrier is again intact
- b. ??Der Raupenschlepper ist **wiederum/erneut/noch einmal/ein**
the power carrier is again_{rep}/again_{rep}/once more/ one more
weiteres Mal heil
time intact

Perhaps we can explain this distribution if we require that the repetitive adverbs mentioned require the presence of a voice phrase.¹⁶ Let us therefore tentatively risk the

¹⁶The facts are not as clear as one would like. The said referee writes: “Zumindest erneut kann zweifelsfrei auch als Zustandsprädikat fungieren, vgl. *Das Fahrrad ist erneut kaputt.*” Perhaps these adverbs are not purely repetitive. There seems to be a scale from *wieder*, which has the broadest use, to adverbs which are very near to quantificational adverbs; *noch einmal* seems to belong to this other end of the scale. Quantificational adverbs don’t combine with statives at all:

- (i) *Die Tasse war **noch einmal/dreimal** heil
the cup was once more/three times intact

The modification of predicative participial phrases by adverbs of quantification is not very good but certainly better:

- (ii) die Tasse ist **dreimal** geklebt
the cup is three times glued

following generalization:

- (7-3) *wiederum, erneut, noch einmal, ein weiteres Mal,...*attach to VoiceP (and possibly to higher projections).

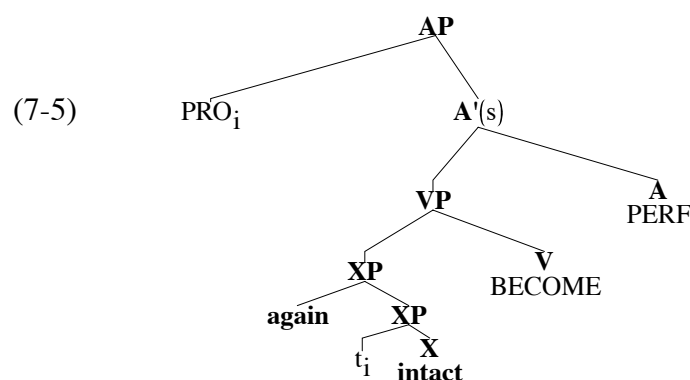
The examples suggest, then, that “statal passives” do not contain a voice phrase and are therefore not passives, a claim defended for independent reasons in Kratzer (1994). The examples in (7-1b) are not totally unacceptable, but there is a clear contrast between them and the (7-1c)-examples, which are instances of the verbal passive (“Vorgangspassiv”). My guess is that we reinterpret the (7-1b)-sentences as verbal passives if we accept them.

The situation is different with attributive participial phrases; here the repetitive adverbs can be inserted without any problem:

- (7-4) a. der **wieder** reparierte Raupenschlepper (repetitive/restitutive)
 the again repaired power carrier
 b. der **erneut/ein weiteres Mal/noch einmal/dreimal** reparierte
 Raupenschlepper

I tentatively conclude that attributive participial phrases *may* have a voice projection. This conclusion is not in agreement with Kratzer (1994), who claims that attributive participial phrases (her verbal participial phrases) are purely verbal. I say something about her motivation at the end of this section. Let me present the analysis first.

Concerning predicative participial phrases, we follow Kratzer (1994: p.39) with slight changes which are due to our decompositional approach. The LF of the predicative participial phrase in (7-1a) is this:



In other words, the head of the phrase is the adjective morpheme PERF, the

This suggests that the modification takes place under the PERF operator which transforms the BECOME-verb into a stative.

perfectivizer, which min- and max-selects V and VP, respectively. Kratzer's semantics for PERF is this¹⁷:

- (7-6) PERF is a symbol of type $\langle\langle s,t \rangle, \langle s,t \rangle\rangle$.
 $\| \text{PERF} \|(\text{P})(s) = 1$ iff $\exists e[\text{P}(e) = 1 \ \& \ s = f_{\text{target}}(e)]$, where P is any property of events with a target state and s is a state.

PRO_i is interpreted as λ_i ; hence, this symbol has to be brought to an operator position at LF.¹⁸ f_{target} is a function which assigns telic events their target states. The notion of target state is motivated in Kratzer (1994: p. 32 ff.) and in Klein (1994).

Given these assumptions, the LF translates into the following formula:

- (7-7) $\lambda x_i[\text{PERF}(\text{BECOME}(\mathbf{again}(\mathbf{intact}(x_i))))(s)]$

Given an appropriate semantics for the “control copula”, which is the identical mapping¹⁹, we can predicate this of the subject and obtain the wanted restitutive reading, namely that the power carrier is in the target state of a repairing after having been broken.

What happens if we attach *wieder* to VP or to A'? We would obtain formulae expressing “intermediate readings” (cf. section 3); i.e., the power carrier had been repaired before but not necessarily by the same people.

- (7-8) a. $\lambda x_i[\text{PERF}(\mathbf{again}(\text{BECOME}(\mathbf{intact}(x_i))))(s)]$
 b. $\lambda x_i[\mathbf{again}(\text{PERF}(\text{BECOME}(\mathbf{intact}(x_i))))(s)]$

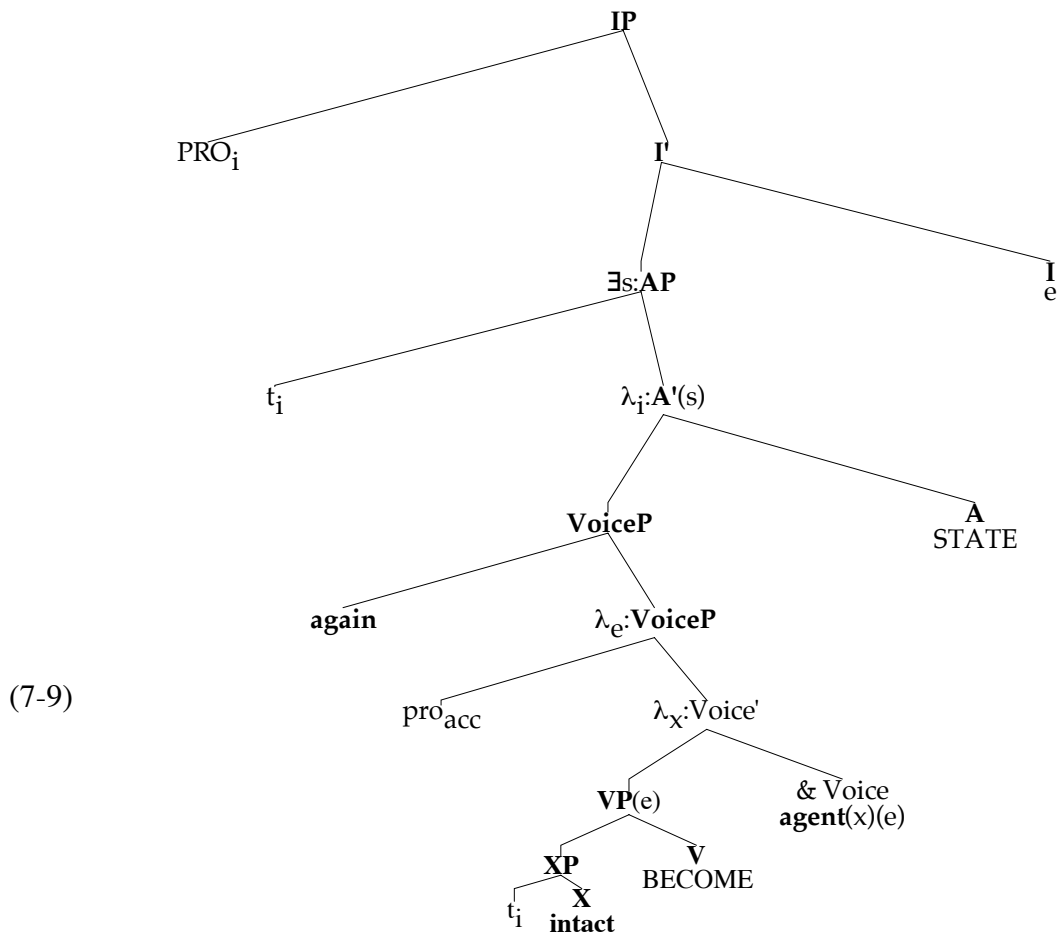
Predicate (a) applies to the power carrier if it is in target state of a repairing and if it had been repaired before. (b) applies to the power carrier if it is in the target state of a repairing and if it had been in the target state of repairing before. Both predicates are equivalent and express repetitions. I find these readings hard to get, but see no obvious way to block them in my account.

Let me turn to attributive participle phrases next. I speculated that they *may* contain a voice phrase. Furthermore, these participles have adjectival inflection. This suggests that the sequence of morphemes is Verb+Voice+A+INFL. Thus, a possible LF for the participle phrase in (7-4a) could be this:

¹⁷Kratzer (1994: p. 39).

¹⁸Kratzer (1994: p. 70) interprets the index i of PRO_i as λ_i , whereas PRO is an NP which is invisible for the semantic component. For the purposes of this paper, my slightly simpler account is sufficient.

¹⁹Cf. Kratzer (1994: p. 69).



As we said before, [Spec, A] licenses PRO. We could leave it there, but given that we have a [Spec, I] position, we use the latter as the operator position. Similarly, we have to say that the morpheme STATE – the semantics will be given in a moment – selects Voice. And Voice has to license pro_{acc}. *Vide* also Rapp (1995), where a rather similar analysis is proposed.

And here is the semantics of STATE.

- (7-10) STATE is a symbol of type $\langle\langle s,t \rangle, \langle s,t \rangle\rangle$.
 $\| \text{STATE} \|(P) = \| \text{PERF} \|(P)$, if P is a property of telic events.
 $\| \text{STATE} \|(P) = P$ otherwise.

This somewhat ugly disjunctive definition takes account of the fact that $\| \text{PERF} \|(P)$ is not defined for properties of non-telic events. We will cite an example of Kratzer's in a moment. First, let us consider the translation of the LF into a formula. After some l-conversions we obtain:

(7-11) $\lambda x_i \exists s [\text{STATE}(\mathbf{again}(\lambda e [\text{BECOME}(\mathbf{intact}(x_i))(e) \ \& \ \mathbf{agent}(\text{pro})(e)]))(s)]$

The formula expresses the property true of an individual *a* iff there is a state which is the target state of someone's (=pro's) action of repairing *a*, where *a* has performed such an action before. Clearly, this is the intended result.

Kratzer (1994) argues against an analysis which regards attributive participial phrases as passivized. Here are some relevant examples (Kratzer (1994: p. 48):

(7-12) a. Ein von zwei Rappen gezogen-er Wagen (Kratzer (1994)-(6))
 a by two black horses drawn-agr cart
 b. *Der Wagen ist von zwei Rappen gezogen (Kratzer (1994)-(10))
 the cart is by two black horses drawn

(7-13) a. Die heute morgen gemalt-en Stilleben (Kratzer (1994)-(7))
 the today morning painted-agr still lives
 b. *Das Stilleben war heute morgen gemalt (Kratzer (1994)-(11))
 the still life was today morning painted

She says (Kratzer (1994, p. 49) that the ungrammaticality of the (b)-examples show that reduced relatives, i.e., attributive participial phrases, have verbal, and not adjectival participles. She also mentions an observation by Wilmanns and Paul “that the aspect of reduced relatives formed from verbal participles matches the Aktionsart of the verb from which the participle is formed.” She concludes, “This shows that the verbal participle affix is not an aspectual operator (or it would have to be a trivial one). In particular, it is not a perfectivizer.”

I was not able to fully appreciate these remarks because the manuscript I have doesn't contain a detailed analysis of reduced relatives. I have no problems with process verbs. Kratzer's analysis of the verb *ziehen* “to pull” would be (cf. Kratzer (1994: p. 39):

(7-14) *zieh*-* $\lambda x \lambda e [\mathbf{pull}(x)(e)]$ “*e* is a pulling of *x*”

(The asterisk indicates the translation into the logical language). Neglecting the adverbial *von zwei Rappen*, the participial phrase in (7-12a) is perhaps translated as something like:

(7-13) $\lambda x \exists e [\mathbf{pull}(x)(e)]$

We can intersect this with **cart** and obtain

(7-14) $\lambda x \exists e [\text{pull}(x)(e) \ \& \ \text{cart}(x)]$

This is the property true of individuals which are carts and are in the process of being pulled. Let us look at result verbs next. I don't want to consider Kratzer's example (7-13a), because verbs of creation like *malen* "to paint" raise further complications. Let us consider a simplified version of our original example instead:

(7-15) der reparierte Raupenschlepper
 the repaired power carrier

In analogy to the examples given on page 35, Kratzer would analyze *reparieren* "to repair" as something like this:

(7-16) reparier-* $\lambda x \lambda e [\text{repaired}(x)(f_{\text{target}}(e))]$
 "e is an event at whose end x is repaired"

Applying the same method as before, we would obtain something like the following translation for the modified noun:

(7-17) $\lambda x \exists e [\text{repaired}(x)(f_{\text{target}}(e)) \ \& \ \text{power carrier}(x)]$

It is not clear to me that this formula expresses a result character. It applies to a thing which is a power carrier and which undergoes an action which has the target that the thing is repaired. It is not excluded that the action is over when the property applies, but is it necessarily completed?

My analysis is different. Stated in Kratzer's terms, the complex noun is translated as:

(7-18) $\lambda x \exists s \exists e [\text{repaired}(x)(s) \ \& \ s = f_{\text{target}}(e) \ \& \ \text{agent}(\text{pro})(e)$
 $\ \& \ \text{power carrier}(x)]$

This result is achieved by the perfectivizing job of the STATE-operator, and I fail to see why it should not be necessary here.

A remark on the ungrammaticality of the examples (7-12b) and (7-13b) is in order. Presumably, the *von*-phrase in (7-12b) has to bind a pro at LF, although the details have to be worked out. In any case, the presence of such adverbials is a classical diagnostic for passivization, and predicative participles are not passivized, although I am not so sure how reliable this diagnostic is. As for (7-13b), this example contains the frame setter *heute morgen* "this morning", which arguably has a position outside the VP.

Finally, let me stress that I do not claim that attributive participial phrases are

obligatorily passivized. Unaccusative verbs cannot be embedded under Voice, as we know. Take the following example:

- (7-19) der **wieder** abgestürzte Raupenschlepper
 the again crashed power carrier

Everything is as before, except that the voice phrase is missing; i.e., the repetitive reading of the participial phrase has roughly the following analysis:

- (7-20) [IP_{PRO}_i [AP t_i' [VP **again** [VP[XP t_i **down**] BECOME] STATE] INFL]

If we have two possibilities of analyzing attributive participle phrases, which one should we choose? Kratzer (1994, p. 4) points out the criterion of possible coreference between (implicit) subject and object, which might help:

- (7-21) a. Das Kind war gekämmt (Kratzer (94)-(7a))
 The child was combed (stative)
 b. Das Kind wurde gekämmt (Kratzer (94)-(7-b))
 the child got combed (eventive)

She comments, “7(a) is compatible with the child having combed herself, 7(b) is not.” The non-coreference in (b) follows from the Binding Theory for the analysis of the passive she assumes. It follows that the attributive participial phrase in (7-22) should not be analyzed as passivized:

- (7-22) Das sorgfältig gekämmte Kind
 the carefully combed child

If the pro-subject of a passive construction were coreferential with the PRO moved to an operator position, a violation of principle C would arise. This would predict that the comber couldn't be the child, contrary to the facts. On the other hand, the Case theory outlined in section 4 entails that we should have a voice projection if we have a structural dative in the participial phrase.²⁰

²⁰Kratzer (1994) tells a different story about the dative. For her, it is licensed by a visible or invisible preposition. This preposition incorporates into the verb, but verbs which have incorporated empty prepositions cannot incorporate further. This explains the contrast

- (i) *Das Manuskript ist ihr geschickt (Kratzer (1994: p. 50))
 the manuscript is her_{dat} sent
(ii) das ihr geschickte Manuskript
 the her_{dat} sent manuscript

The invisible preposition licensing the dative is incorporated into V. In (i), V has to incorporate further

- (7-23) a. Die ihm gegebene Macht war gewaltig
the him_{dat} given power was enormous
b. Er trocknete die ihm gesalbten Füße
he dried the him_{dat} rubbed with ointment feet

It seems to me that the dative pronoun cannot be coreferential with the implicit subject of the participial phrase. Thus, this seems to be the correct prediction.

If it were true that the repetitive adverbs mentioned did require a voice projection, one would expect passivization in the attributive participial phrase:

- (7-24) Das **noch einmal** sorgfältig gekämmte Kind wurde sehr bewundert
the again_{rep} carefully combed child was very admired

The presence of a voice projection would predict that the child could not have combed herself. This is the prevailing reading, but I am not sure that self-combing is totally excluded. All this is very subtle, and more is to be said about it. I will leave the matter at this stage. It seems to me that nothing in this section contradicts the general thesis of this paper that the different readings encountered with *wieder* should be analyzed in terms of syntactic scope. The problem of this section is not that we do not have enough structural distinctions. There might be too many.

8. *Wieder* and sloppiness

Terms become sloppy if one of the parameters which determine their reference is bound by an operator. In this section we will derive Fabricius-Hansen's (1983) observation that sentence (8-1a) exhibits a sloppy reading with respect to the term *den Namen ihres Mannes* "the name of her husband", which is not present in sentence (8-1b):

into A. This is blocked. According to Kratzer, attributive participial phrases are verbal; therefore, no further incorporation is necessary in (ii). With open prepositions, the dative is possible in predicative participial phrases as well:

- (iii) Der Ball war ihm zugeworfen
the ball was him_{dat} to-thrown

I have to say that the structural dative without preposition (examples (i) and (ii)) is licensed by [Spec, AgrInd.O], which requires the presence of VoiceP. This explains the contrast (i)/(ii). The dative in (iii) is licensed exactly as Kratzer proposes. Thus, there are two mechanisms for dative licensing.

- (8-1) a. (weil) Anna **wieder** den Namen ihres Mannes annahm (strict/sloppy)
(because) Anna again the name of her husband takes
b. Anna den Namen ihres Mannes **wieder** annahm (only strict)
Anna the name of her husband again takes

It is plausible that the availability of the sloppiness has to do with whether “the name of her husband” is in the scope of *wieder*. *Wieder* involves two different events, and the husband might have changed in between. The explanation of the data will be that if the term “Anna’s husband” is in the scope of *wieder*, it will have sloppy interpretation if its event variable is bound by *wieder*. If the event variable remains free, we will have a strict interpretation. If “Anna’s husband” is not in the scope of *wieder*, the event variable will not be bound by *wieder*, and the term will have a strict interpretation with respect to *wieder*.

Let us comment on the different readings of the sentences first. Sentence (8-1a) may describe a situation in which Anna was first married to Otto and had taken his family name. Then, they got a divorce and Anna took her maiden name again. After a while, she again took Otto’s family name, either by marrying him again or by some other legal act. This is the strict reading for “the name of her husband”.²¹ The sloppy reading suggests two marriages to two separate men, with a divorce in between, and in each case Anna took the family name of her husband.

The explanation of the data is that the term “the name of her husband” has an event (or temporal) parameter which can be bound by the λ -operator associated with **again**. When this is the case, we have a sloppy reading. Binding requires that the binder c-command the bound material. This is the case in example (8-1 a) but not in (8-1 b).

Note that *annehmen* “to take on” is a **holder** + object result verb and that (8-1a) can therefore have a restitutive reading although *wieder* is in a pre-object position.

Let us derive the sloppy/strict ambiguity of sentence (8-1a). In order to simplify the formulae, we represent the term “the name of x ’s husband” by the symbol $\mathbf{f}_e(x)$, whose meaning is defined as follows:

- (8-2) $\mathbf{f}_e(x)$:= the name of the person who happens to be x ’s husband at the time of e .

Even if x is kept constant, the value of $\mathbf{f}_e(x)$ may be different for different e ’s.

Suppose first that the object is in the accusative position embedded under **holder**. The formula representing the sloppy reading of this configuration is the following (after several λ -conversions):

²¹The analysis requires that the description “her husband” may refer to Otto, even if Otto is presently not Anna’s husband anymore. The only pragmatic constraint seems to be that Anna did not remarry after the divorce. Thus, “her husband” means “Anna’s husband at time t ”, where t is contextually determined. Such uses of terms are known under the name *ampliatio* in the tradition.

$$(8-3) \quad \exists e[\mathbf{again}(\lambda e[\mathbf{agent}(\mathbf{Anna})(e)] \\ \& \mathbf{BECOME}(\lambda s[\mathbf{possess}(\mathbf{f}_s(\mathbf{Anna}))(s) \& \mathbf{holder}(\mathbf{Anna})(s)])(e)])(\mathbf{PAST}(e))]$$

The formula expresses a repetition: Anna married again and took the name of the new husband.

Suppose next that the direct object is in the accusative position above VoiceP. The sloppy reading created by this representation is given by the following formula:

$$(8-4) \quad \exists e[\mathbf{again}(\lambda e[\lambda x[\mathbf{ag.}(\mathbf{Anna})(e)] \\ \& \mathbf{BEC.}(\lambda s[\mathbf{poss.}(x)(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(e)])(\mathbf{f}_e(\mathbf{Anna}))](\mathbf{PAST}(e))] \\ = \exists e[\mathbf{again}(\lambda e[\mathbf{ag.}(\mathbf{Anna})(e)] \\ \& \mathbf{BEC.}(\lambda s[\mathbf{poss.}(\mathbf{f}_e(\mathbf{Anna}))(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(e)])(\mathbf{PAST}(e))]$$

The difference between the two readings is very subtle. In (8-3) the name of Anna's husband is determined only after the completion of the action, whereas in (8-4) the name of the husband is not affected by the action. The first scenario is very unplausible. Thus, for pragmatic reasons, both readings amount to the same "sloppy" repetition.

Let us turn to the restitutive sloppy readings of (8-1a) next. In principle, there could be three of them, because **again** could modify the **possess** phrase, the **possess** + **holder** phrase or the **BECOME** phrase. In fact, the possibilities are reduced to two, because the direct object is in the accusative position, which embeds the **possess** phrase. After performing several λ -conversions, we are left with the following two formulae:

$$(8-5) \quad \text{a. } \exists e(\mathbf{ag.}(\mathbf{Anna})(e) \& \mathbf{BEC.}[\mathbf{again} \\ (\lambda s[\mathbf{poss.}(\mathbf{f}_s(\mathbf{Anna}))(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(\mathbf{PAST}(e)))] \\ \text{b. } \exists e(\mathbf{ag.}(\mathbf{Anna})(e) \& \mathbf{again}[\mathbf{BEC.} \\ (\lambda s[\mathbf{poss.}(\mathbf{f}_s(\mathbf{Anna}))(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(\mathbf{PAST}(e)))]$$

In (8-5a) Anna did something which caused her to have the name of her current husband, and she had had the name of a husband of hers before, either the same one or another. If he is the same person, the interpretation coincides with the restitutive strict reading, which we will discuss in a moment. If it is another husband, then the reading coincides with the repetitive sloppy reading for pragmatic reasons. (8-5b) is the "intermediate" reading. I won't comment on it, since it presupposes a rather peculiar scenario.

Strict readings are obtained by leaving the event variable of $\mathbf{f}_e(x)$ free in the

scope of **again**. We can also achieve this effect by QR-ing the direct object at LF. Let us choose the former option; i.e., we leave the event variable simply free in the scope of **again**. The reader may check for himself that we are left with three strict interpretations for (8-1a):

- (8-6) a. $\exists e[\mathbf{again}(\lambda e'[\mathbf{ag.}(\mathbf{Anna})(e') \& \mathbf{BEC.}(\lambda s[\mathbf{poss.}(\mathbf{f}_e(\mathbf{Anna}))(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(e')])(\mathbf{PAST}(e))]$
 b. $\exists e(\mathbf{ag.}(\mathbf{Anna})(e) \& \mathbf{BEC.}[\mathbf{again}(\lambda s[\mathbf{poss.}(\mathbf{f}_e(\mathbf{Anna}))(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(\mathbf{PAST}(e))])$
 c. $\exists e(\mathbf{ag.}(\mathbf{Anna})(e) \& \mathbf{again}[\mathbf{BEC.}(\lambda s[\mathbf{poss.}(\mathbf{f}_e(\mathbf{Anna}))(s) \& \mathbf{hold.}(\mathbf{Anna})(s)])(\mathbf{PAST}(e))])$

The most natural strict reading is represented by (8-6a). This is the repetition in which Anna twice took the name of the same man. This is the restitutive reading for the same husband. (8-6c) is the “intermediate” reading.

Let us resume the sloppy/strict configurations. For a term to be sloppy, the event variable must be bound by the λ -operator following **again**:

- (8-7) a. The sloppy configuration of $\mathbf{f}_e(x)$ with respect to **again**: e is bound in the scope of **again**:
 $\mathbf{again}(\lambda e[\dots\mathbf{f}_e(x)\dots])(e)$
 b. The strict configuration of $\mathbf{f}_e(x)$ with respect to **again**: e is free in the scope of **again**:
 $\mathbf{again}(\lambda e'[\dots\mathbf{f}_e(x)\dots])(e')$

Strict readings require the event variable of $\mathbf{f}_e(x)$ to be free in the scope of **again**. A typical case is an LF where the term is moved to a Case position higher than **again**:

- (8-8) A typical strict reading configuration occurring with **again**
 $\mathbf{f}_e(x)(\lambda y[\mathbf{again}(\lambda e[\dots y \dots])(e)])$
 $\uparrow \quad \quad \quad \downarrow$
 Movement to [Spec, AgrO]

If movement to [Spec, AgrO] did always go in tandem with a strict interpretation, this would mean that we could not reconstruct this type of movement at LF. The matter deserves more scrutiny, however. It is not clear to me that the following example excludes a sloppy interpretation:

- (8-9) Wladimir hat seinen Computer **wieder** ruiniert
 Wladimir has his computer again ruined

If a sloppy reading is possible here, we have to reconstruct the direct object in a position at LF where we can bind the event variable of the description.

9. Counterdirectional *wieder*?

One of the central semantic ideas underlying the explanations given in this article is to reduce the apparent ambiguity of “again” to one basic reading, namely the repetitive one: the repetition of a state is called a *restitution*, and the repetition of a becoming is called a *repetition*. The terminology (*restitution/repetition*) as such is irrelevant. What really matters is whether “again” has narrow or wide scope with respect to the relevant “aspectual” operators, especially to BECOME. I take it that the spirit behind the methodology of this enterprise follows Dowty (1979) in the essential respects. In this section I want to defend this “classical” approach against possible objections arising from a recent proposal by Fabricius-Hansen.

Fabricius-Hansen²² points out on several occasions that a scope solution for the ambiguity has to face empirical difficulties having to do with verb pairs like *to fall/to rise*, which may be called *counterdirectional* antonyms.²³ Consider the following pair of sentences:

- (9-1) a. das Barometer WIEDER fiel (repetition)
the barometer again fell
b. das Barometer wieder FIEL (restitution?)

Clearly, (9-1a) has a repetitive sense: the barometer fell after having fallen before. But what about the restitutive reading? Such a thing does not seem to exist. On the other hand, we have a very clear intuition about what (9-1b) means: the barometer fell after a rising. This reading is called *counterdirectional* by Fabricius-Hansen. The terminology is well motivated because the sentence does not seem to express the restitution of a state but rather the continuation of motion or transition in “reversed direction”.

In recent talks,²⁴ Fabricius-Hansen generalizes the concept of counterdirectionality by defining a relation CONTRA between properties. Her idea is that the old notion of restitution is a special case of the new, more general concept.

²²Fabricius-Hansen (1980) and (1983).

²³Fabricius-Hansen (1980) observes that English *again*, Danish *igen* “again”, Norwegian *igjen* “again”, and German *wieder* “again” originally all meant “against”. Since the notion “against” denotes a contrast, it is plausible that “against” expressed a contrast in time for counterdirectional pairs like “to fall” and “to rise”. Thus, “again fall” could have meant something like “against what we had before, we have a falling now”.

²⁴Tübingen July 1994 (= Fabricius-Hansen 1994a), Blaubeuren October 1994 (= Fabricius-Hansen 1994b).

Fabricius-Hansen assumes two operators, RES and PRE, which assign the target state property and the pre-state property to a temporal property. For instance,

- (9-2) a. $\text{PRE}(\mathbf{fall}(x)) = \mathbf{higher}(x)$
 b. $\text{RES}(\mathbf{fall}(x)) = \mathbf{lower}(x)$

(Cf. Fabricius-Hansen 1994 b, Fig. 1a.) The relation CONTRA holds of two properties iff they have reversed pre-state and target state properties:

- (9-3) $\text{CONTRA}(T, T^*)$ iff $\text{RES}(T) = \text{PRE}(T^*)$ & $\text{RES}(T^*) = \text{PRE}(T)$
 (Fabricius-Hansen 1994 b, def. 12a)

T and T* are properties expressing transitions. It follows that “fall” and “rise” stand in the relation CONTRA. The final concepts we need in order to understand Fabricius-Hansen’s new theory are the descriptions $\text{Pre}_T(e)$ and $\text{Res}_T(e)$, which denote the pre-state and the result state of the transition e, where e has property T:

- (9-4) a. $\text{Pre}_T(e) := \text{ts. } f_{\text{pre}}(e) = s \ \& \ T(e).$
 b. $\text{Res}_T(e) := \text{ts. } f_{\text{target}}(e) = s \ \& \ T(e).$

f_{pre} assigns to any event its prestate. f_{target} is Kratzer’s target state function. Fabricius-Hansen’s (1994b, def. 13c) meaning rule for “counterdirectional restitution” is the following:

- (9-5) $\mathbf{again}_c(T)(e)$ iff $T(e) \ \& \ \exists e^* \ \exists T^* [\text{CONTRA}(T, T^*) \ \& \ T^*(e^*)$
 & $\text{TIME}(e^*) < \text{TIME}(e) \ \& \ \text{Res}_{\text{MAX}}(T^*)(e^*) = \text{Pre}_{\text{MAX}}(T)(e)]$,
 where T and T* are properties expressing transitions.

(I am using the index “c” for counterdirectional *again* in order to avoid confusion with my own definition.) TIME is a function that assigns every event its running time. (It seems to me that the formulation of this meaning rule is unnecessarily strong. As far as I can see, the last conjunct could be replaced by the simpler condition $\text{MAX}(T^*)(e^*)$, and thus the descriptions in (9-4) would be dispensable for the theory.²⁵) The “counterdirectional-restitutive” reading, which is expressed by (9-1b), is now formalized as (9-6):

- (9-6) $\exists e [\mathbf{again}_c(\mathbf{fall}(\mathbf{the \ barometer}))(\text{PAST}(e))]$

²⁵Consider sentence (9-1a). If the barometer fell after a rising, then there was a “last” rising before the falling and the barometer fell after that. I see no point in writing this into the meaning rule.

The formula expresses correctly that the falling occurs (immediately) after a rising.

At this point the question arises of how the repetitive reading, i.e., sentence (9-1a), is represented. I am not quite sure what Fabricius-Hansen's position actually is. In Fabricius-Hansen (1994a) she simply assumes a lexical ambiguity. Let us denote this meaning by **again_{rep}**. In other words, (9-1a) is represented as (9-7):

(9-7) $\exists e[\mathbf{again}_{rep}(\mathbf{fall}(\mathbf{the\ barometer}))(\mathbf{PRES}(e))]$

The meaning of **again_{rep}** is the same as that described in rule (9-20) below. It means that the property in question is instantiated at the evaluation time and had been instantiated at an earlier time. The necessity of introducing a lexical ambiguity is a disadvantage of this proposal. Stechow (1995) raises this criticism against Dowty's (1979) attempt to assume a lexical ambiguity for *again*. Another point, which is more Troubling, is that there is no way to explain the loss of the restitutive-counterdirectional reading if *wieder* precedes the subject at surface structure. One of the crucial aims of the theory defended in this article is precisely that of offering a structural explanation in terms of scope for this fact.

An attractive feature of Fabricius-Hansen's proposal is that it applies to "telic transitions" as well, for instance, to the verb pair *einschlafen/aufwachen* "to fall asleep/to wake up". The properties expressed by these verbs stand in the CONTRA-relation. Hence, the meaning rule (9-5) applies to them.²⁶ For instance, we can formalize the meaning of (9-8a) as (9-8b):

(9-8) a. weil Otto **wieder** AUFwachte
because Otto again up woke
b. $\exists e[\mathbf{again}_c(\mathbf{wake-up}(\mathbf{Otto}))(\mathbf{PAST}(e))]$

The formula correctly expresses that Otto first fell asleep, then Otto slept for a while, and finally woke up. A sentence with repetitive *wieder* is formalized with **again_{rep}**, of course. Again, we would like to have an explanation for the fact that we have only the repetitive reading if *wieder* precedes the subject.

Next, consider a pair of transitive CONTRA-verbs, viz. *öffnen/schließen* "to open/to close". In Fabricius-Hansen (1994b) we find the entry **x y öffnen** "x open y" for "to open". Carried over into a Davidsonian approach, this means that the verb has to be formalized as **open(y)(x)(e)**. Therefore, the restitutive-counterdirectional reading is represented as (9-9b):

²⁶The maximality condition is redundant for telic transitions, because properties expressing them do not have the subinterval property. Hence, the maximality condition is trivially fulfilled.

- (9-9) a. Ali Baba Sesam **wieder** öffnete
 Ali Baba Sesame again opened
 b. $\exists e[\mathbf{again}_c(\mathbf{open}(\mathbf{Sesame})(\mathbf{Ali})(\mathbf{PAST}(e)))]$

Let us assume that

$$\mathbf{PRE}(\mathbf{open}_V(\mathbf{Sesame})(x)) = \mathbf{closed}_A(\mathbf{Sesame}) = \mathbf{RES}(\mathbf{close}_V(\mathbf{Sesame})(y))$$

and

$$\mathbf{PRE}(\mathbf{close}_V(\mathbf{Sesame})(y)) = \mathbf{open}_A(\mathbf{Sesame}) = \mathbf{RES}(\mathbf{open}_V(\mathbf{Sesame})(x)),$$

where x and y are arbitrarily chosen subjects. It follows that the transitional properties $\mathbf{open}(\mathbf{Sesame})(x)$ and $\mathbf{close}(\mathbf{Sesame})(y)$ stand in the CONTRA-relation. Therefore, formula (9-9b) says that Ali opened Sesame after Sesame had been closed by someone else or had closed by itself. These truth conditions conform to our intuitions.

Again, it would be nice to be able to explain why the sentence

- (9-10) weil Ali **wieder** Sesam öffnete

has only a repetitive reading. Why does it have exactly the same logical form (9-9b), with the only difference being that we have to choose \mathbf{again}_{rep} instead of \mathbf{again}_c ? I have no idea how Fabricius-Hansen's new theory would answer this question.

Let us take up the question of how "counterdirectional" readings are treated in our approach. Ignoring tense, the main idea for an analysis of (9-1b) is resumed in the following paraphrase:

- (9-11) e is an event at whose end the barometer is again in a lower state.

This is the restitution of a state of the needle. Ignoring tense, the formalization is this:

- (9-12) **the barometer**(λx .BECOME
 $\mathbf{again}(\lambda s[\mathbf{MORE}[\lambda d.d\text{-low}_s(x), \lambda d.d\text{-low}_{beg}(e)(x)]])(e)$)

Here $beg(e)$ is the beginning of the event e , i.e., its left boundary. In this formula, MORE is the (abstract) comparative morpheme. For my purposes, the comparative semantics of Seuren (1973) will do:

- (9-13) $\parallel \mathbf{MORE} \parallel (P, Q)$ iff $\exists d[P(d) \ \& \ \neg Q(d)]$,
 where P and Q are properties of degrees.

Together with Seuren, I assume that properties of degrees are downward entailing in the sense that if a degree has some property, then any lower degree has that property as well. $d\text{-low}_s(x)$ means that the “lowness” degree of x at state s is d . Increasing lowness means decreasing height, of course. For a construction of degrees of lowness, smallness and so on, *vide* Stechow (1984b).²⁷

Thus, the formula (9-12) means that at the end of e , the barometer is down to a level which is lower than its level at the beginning of e , and the presupposition is that at some earlier time, it has been down to a level lower than its level at the beginning of e at some earlier time.

At this point, it becomes obvious that the terminology *restitutive* versus *repetitive* is not always appropriate. (9-12) does not express the restitution of a particular state of the barometer, because the fall of the barometer might be longer than its previous rise; i.e., the final state of the falling might be lower than the state at the beginning of the rising. So, we might speak of the restitution of a lower degree: the comparative MORE contains an existential quantifier and this one is in the scope of **again**. I would not call such repetition a restitution. That terminology is simply out of place.

An anonymous referee comments on this analysis as follows:

“There is one situation in which this analysis seems implausible, and this is the one actually mentioned.... Assume times t_0, t_1, t_2, \dots , where t_0 is the first time under consideration. Assume the following barometer values:

$t_0: 800, t_1: 850, t_2: 900, t_3: 850, t_4: 800, t_5: 750, t_6: 700, t_8: 650$

I think that we can say for all points between t_2 and t_8 , *das Barometer fällt wieder*. But notice that for the interval, say, $[t_5, t_6]$, there is no barometer value in the past that was lower than the barometer value at t_5 , 750. The present analysis would say that only the intervals $[t_2, t_3], [t_3, t_4]$ make the sentence true.”

Yes and no. If we understand *das Barometer fällt* in the perfective aspect, i.e., the event time coincides exactly with the reference time, then I would agree. But in German we have no grammaticalized aspects. If we evaluate the sentence with respect to the

²⁷Stechow (1984b) reconstructs “positive” degrees like tallness as intervals $[0, m]$, where 0 marks the beginning of the relevant scale and m is a number marking the distance from 0 with respect to some appropriate measure. The degree d is higher than d^* , iff d^* is a proper subset of d . This is the case for $[0, m]$ and $[0, n]$ if $m > n$. “Negative” degrees are regarded as intervals $[m, \infty]$, where the right boundary is left open. $[m, \infty]$ is higher than $[n, \infty]$ if $m < n$, because only then is the second a proper subset of the first. “6 feet tall” is reconstructed as the distance from 0 to 6 in feet. “6 feet small” makes no sense literally, because it would be the distance in feet from ∞ to 6. We don’t know what this should be. But “6 feet smaller” makes sense, because the difference between two degrees of smallness is defined. For $[m, \infty]$ and $[n, \infty]$ this is $|m - n|$; i.e., the absolute value of the difference between m and n .

interval $[t_5, t_6]$, we silently switch to the imperfective aspect. I.e., we consider the interval as part of a larger interval, say, $[t_2, t_6]$, which can make the sentence true. In other words, we evaluate the “progressive” meaning “the barometer is falling again” with respect to the interval $[t_5, t_6]$.

For convenience, we will keep Fabricius-Hansen’s repetitive/restitutive distinction. The meaning of (9-1a), a repetitive reading, is then represented by

(9-14) **the barometer**(λx .**again**

[BECOME(λs [MORE[λd .d-**low**_s(x), λd .d-**low**_{beg}(e)(x)]])(e))

In other words, everything is as before.

What about counterdirectionality? In the classical approach, this term has no theoretical significance. Regardless whether we have a repetitive or a “counterdirectional” reading of our sentence, there must be a last preceding rising. The repetitive reading entails that there was a previous falling as well. The “counterdirectional” sense does not require this, but does not exclude it either. It could be the case that we have in mind the last rising when we express the “counterdirectional” meaning. If there were a previous falling, we should have uttered a sentence expressing the repetitive reading according to the Gricean maxim of informativeness. It is therefore plausible that we have in mind a previous falling when we utter a sentence expressing the repetitive sense. All this is pragmatics and psychology, not semantics, one might argue.

Returning to our analysis of “to fall”, I have to add that the decomposition is the same which Dowty (1979, p. 88 ff.) seems to have in mind for what he calls “degree-achievements”. Typical examples are these:

- (9-15) a. The soup cooled for ten minutes
 b. The soup became cooler for ten minutes
 c. *The soup became cool for ten minutes

If “the soup cooled” is analyzed as “the soup became cooler”, the expression denotes a process and can be modified by the durative adverbial “for ten minutes” (perhaps combined with the invisible quantification “for each relevant subinterval of”, as Dowty (1979) assumes for that adverbial). (9-15c), on the other hand, expresses a genuine achievement and cannot be combined with that adverbial. (There is a reading in which the sentence is acceptable, namely, when the adverbial qualifies the result state.) It is the inherent comparativeness which makes “degree-achievements” processes. Telic transitions are achievements or accomplishments and therefore cannot be combined with adverbials of the said kind. The decompositional approach gives a uniform explanation of these apparently unrelated facts.

In order to describe the restitution of stative properties, Fabricius-Hansen (1994b) introduces a further meaning rule (her rule 14):

- (9-16) **again**_{state}(Z)(s) iff $Z(s) \ \& \ \exists e \exists T [Z = \text{RES}(T) \ \& \ \text{TIME}(e) \ \prec \ \text{TIME}(e) \ \& \ \text{again}_c(e)(T)]$,
where Z is a stative and T is a transition.

(The index “state” is my own addition. I use it to keep this symbol apart from the other symbols for “again”. \prec means “precedes immediately”.) It is not necessary to regard this rule as a further reflex of a lexical ambiguity of *wieder* “again”: the different meaning rules may rather be regarded as the qualification of different cases which the definition of the function expressed by the word has to distinguish. States are different entities than transitions. Therefore, the function can assign them values in a different way. A sentence like

- (9-17) Anna **wieder** gesund ist
Anna again healthy is

would be formalized as:

- (9-18) **again**_{state}(**healthy**(Anna))(s)

Some comments are in order. Fabricius-Hansen’s semantics for this case is more complicated than that for transitions, because rule (9-16) uses the rule for transitions in the definiens. In fact, the formula says that Anna’s being healthy is the result of an immediately preceding becoming healthy for which there is a counterdirectional becoming sick. Since the latter requires Anna’s being healthy to be a pre-state, Anna must have been sick before. This analysis strikes me as somewhat tortuous. In any case, the treatment runs counter to the tradition, according to which the modification of statives is always the primitive case.

In our more traditional approach, the formalization is exactly the same, but the semantics is very simple. The formula says that Anna’s being healthy is later than a previous maximal state of her being healthy. Hence, her health is restituted. Furthermore, it follows without stipulation that there is no “restitutive/repetitive” ambiguity, because the BECOME-functor is missing.²⁸ The situation changes as soon

²⁸The same holds for the following examples with stressed *wieder*, which have been discussed by Fabricius-Hansen on several occasions:

- (1) a. der Kapitän **WIEDER** nüchtern ist
the captain again sober is
b. **WIEDER** ist der Kapitän nüchtern

as we have the auxiliary *werden* “to become”.

- (9-19) a. Anna **wieder** gesund wird (ambiguous)
Anna again healthy becomes
b. **wieder** Anna gesund wird (only repetitive)

The data are predicted by our theory. Fabricius-Hansen distinguishes a further class of properties, which she calls X. These comprise achievements/accomplishments which are not transitions of the kind mentioned. She illustrates this “rest class” with examples such as the following ones: **x auflachen** “to burst out laughing”, **x winken** “to wave”, **x zwei Bier trinken** “to drink two beers”, **x zwei Kilo abnehmen** “to lose two kilos in weight”, **x 100 Meter fallen** “to fall 100 meters”, etc. Whenever “again” applies to such a property, we have to apply the following rule (Fabricius-Hansen (1994, rule 15c):

- (9-20) **again**_{else}(e)(X) iff $X(e) \ \& \ \exists e'[X(e') \ \& \ \text{TIME}(e') < \text{TIME}(e)]$

(The last-resort subscript “else” is my addition.) Fabricius-Hansen calls the readings described by this rule “repetitive” ones. If I understand her correctly, she predicts that we find only a repetitive reading for each of the examples in the above list. This, however, cannot always be correct, because sometimes we have ambiguities here, too.

- (9-21) a. Erst nahm Anna 5 Kilo zu. Dann nahm sie **wieder** zwei Kilo ab.
First put Anna 5 kilos weight on. Then lost she again two kilos.
b. Erst stieg der Ballon 200 Meter. Dann fiel er **wieder** 100 Meter.
First rose the balloon 200 meters. Then fell it again 100 meters.

c. Der Kapitän ist wieder NÜCHTERN

(b) or (c) is a sort of a joke, which points out that we again have the remarkable fact that the captain is sober. These readings do not presuppose that the captain was ever drunk, though they suggest that. I see no way to distinguish semantically between (a) and (b) on the one hand and (c) on the other hand. I think we reinterpret (b) and (c) silently so that they express genuine “repetitions”. Appropriate paraphrases may be:

- (2) Wieder sehen wir den Kapitän nüchtern
“We see the captain sober again”
Wieder haben wir einen Tag, an dem der Kapitän nüchtern ist.
“Again we have a day when the captain is sober”

As desired, these sentences do not presuppose that the captain had been drunk.

Clearly, the second sentences do not express the repetition of losing a particular amount of weight or the repetition of falling a certain distance. Rather, they express the partial restitution of an earlier state: Anna regained the state in which she weighed two kilos less and the balloon regained a height it had had earlier. Fabricius-Hansen can deal with these examples if she classifies the two properties as transitions. The counterdirectional property of losing two kilograms would then be the property of gaining two kilos. And the counterdirectional property of falling 100 meters is that of rising 100 meters. Thus, the second sentence of the first discourse would mean that Anna lost two kilos and that this was after she had gained two kilos in weight. This would be true even if she had gained five kilos in weight. The repetitive sense is obtained by the repetitive “again”.

The examples are interesting as such. So, let us discuss their analysis in a decompositional approach.²⁹ The restitutive sense of the second sentence in (9-21a) is represented as (9-22):

$$(9-22) \text{ BECOME}(\mathbf{again}[\lambda_s(\text{DIFF}(2 \text{ kg})(\text{MORE})) \\ (\lambda d.d\text{-LESS-WEIGH}_s(\mathbf{Anna}), \lambda d.d\text{-LESS-WEIGH}_{\text{beg}(e)}(\mathbf{Anna}))]))(e)$$

DIFF(d) is the operator which accounts for differential comparative readings. If MORE is of the determiner type, DIFF(d) is of the type which takes a determiner and yields a determiner as a value. It is defined only for MORE:

$$(9-23) \parallel \text{DIFF} \parallel (d)(\parallel \text{MORE} \parallel)(P,Q) = 1 \text{ iff } \parallel \text{MORE} \parallel (P,Q) = 1 \\ \& \text{ the max } d^*[P(d^*) = 1] - \text{ the max } d^*[Q(d^*) = 1] = d.$$

The semantics for the relation LESS-WEIGH has to ensure that increasing LESS-WEIGH means the same as decreasing MORE-WEIGH and *vice versa*.

Thus, formula (9-22) means that at the end of *e*, Anna weighs two kilograms less and she had weighed that much before. This reading does not presuppose that Anna had lost weight before. The repetitive reading is expressed by giving **again** wide scope with respect to BECOME.

Are there cases which are irreducibly counterdirectional, i.e., not analyzable by means of an appropriate repetition? I think such cases do not exist. If a “counterdirectional” event is presupposed, then the ongoing event can always be described as the repetition or restitution of a state of that event. I have not proven that in general. I have rather convinced myself of the truth of this claim by going through the relevant cases. And here are some further ones. Fabricius-Hansen (1994b, Fig. 1b) gives the pair *vorwärts gehen/rückwärts gehen* “to go forward/to go backward”. She

²⁹As far as I know, this has not yet been done in detail in the literature. Dowty (1979, p. 88) gives some hints for the treatment of what he calls “degree-achievements”, but he is not sure what the best way of dealing with them would be. A remark pointing to the solution advocated here is found in Abusch’s dissertation. *Vide* Abusch (1985, p. 130).

does not discuss an example, so let us create one:

(9-24) Erst ging Anna vorwärts. Dann ging sie **wieder** rückwärts.

First went Anna forward. Then went she again backward.

This text strikes me as odd because the adverb *rückwärts* “backward” suggests that Anna did not turn around when she went backward. Better continuations of the first sentence would be:

(9-25) Erst ging Anna vorwärts.

a. Dann kehrte sie wieder um.

Then turned she again around.

b. Dann ging sie wieder zurück.

Then went she again back.

It is a remarkable fact that these continuations permit a decompositional analysis. Sentence (a) cannot be interpreted literally: Anna not only has to turn around, but also has to go back a bit “to a point behind her back”. Clearly this is the restitution of a previous state.

Or take the following sentence, a model case for counterdirectional “again”:

(9-26) First, the tape moved to the right. Then, it moved to the left again.

It allows a decompositional analysis as well; when the tape moved back to the left, it moved to a previous position. This is a restitution, with the proviso mentioned in the comment on the analysis (9-12). Finally, take an example pointed out to me by Willi Geuder:

(9-27) Er strich den Satz **wieder** durch

“He crossed the sentence out again”

A literal interpretation is not possible. The sentence means that he brought it about that the sentence was “unactualized” again. Clearly, this is the restitution of a previous state of the sentence.

My tentative conclusion is that there are no cases of irreducible counter-directionality. Thus, our theory does not face empirical difficulties. Furthermore, it can explain certain data which are still a problem for Fabricius-Hansen’s new approach.

A last point worthy of consideration is that the decomposition method applies to other adverbs as well, e.g., to ambiguities arising with “almost”. For a review of the relevant cases, *vide* Dowty (1979, section 5.4). One would have to show how Fabricius-Hansen’s theory applies to these data.

10. Conclusion

I think it is fair to say that the present theory accounts rather well for a number of subtle facts.

One thing is important for the explanation to work: movement to the structural Case position is visible in German, or at least movement to the Accusative position is. In the recent literature (e.g. Chomsky 1992 or 1994), we find remarks that in English this need not be so; i.e., Case is checked at LF. I have not said anything about English Case. My explanation of the German data relies on the assumption that objects at least are at their structural Case positions at “the surface” and adverbs do not move at LF. Under these assumptions, rather subtle facts of German can be explained amazingly well. I take it that this is a rather strong argument in favour of this proposal.

Appendix 1: Comments on Dowty’s (1979) “*again*₂”

The classical examples which have motivated lexical decomposition from the time of Generative Semantics on are ambiguities arising from *again* and *almost*. The most complete survey and review of the relevant literature is found in Dowty (1979). We have not discussed *almost*, which involves quantification over worlds.³⁰ Rather, we have concentrated on the German version of *again*, viz., *wieder*. The classical analysis of *again* is also that of Dowty (1979). Dowty assumes decomposition in the semantic language but not in the syntax. Scope ambiguities are accounted for by meaning postulates and by assuming two lexemes, *again*₁ and *again*₂, where the first accounts for the “outer” or “repetitive” reading and the second for the “inner” or “restitutive” reading.³¹ This approach has been criticized in Stechow (1995) for the following reasons. First, the method of assuming two different lexemes is *ad hoc*. Second, there is no explanation of the fact that the surface position of *again* restricts the range of possible readings. We will be concerned with such cases. Third, Stechow (1995) expresses doubts about the feasibility of the meaning postulates involved.

In his Antrittsvorlesung (cf. Zimmermann 1993) held in December 1992 at the University of Stuttgart, Ede Thomas Zimmermann took up that criticism and made it almost certain that meaning postulates of the sort adopted in Dowty (1979) are not sound. To refute Dowty’s postulate, Zimmermann considers the restitutive reading of a sentence like

³⁰ **almost**(p) means something like “p is true in the nearest world (but not in the actual one)”. Vide Egg (1993) for some recent discussion.

³¹ Cf. Dowty (1979, p. 267):

MP11: $\forall x \forall P \forall p \text{ again}_2 (\wedge \text{CAUSE} (\wedge P(x), \wedge \text{BECOME}(p))$
 $\leftrightarrow \text{CAUSE} (\wedge P(x), \wedge \text{BECOME} (\wedge \text{again}_1 (p)))$

(1) Otto makes the water run again.

Suppose we represent that as (2), with the irrelevant details omitted:

(2) $\text{again}_2(\text{There is an action } x \text{ [Otto does } x \text{ CAUSE water runs]})$

Dowty's problematic meaning postulate says that this statement means the same as

(3) There is an action x [Otto does x CAUSE $\text{again}_1(\text{water runs})$]

where again_1 is the repetitive "again", whose meaning we understand intuitively. Now, Zimmermann assumes the following scenario. Whenever Otto wants to make the water run, he has to turn on the red tap of the shower. It is an essential property of the shower that if one operates the red tap, the first flow of water is cold and the water heats up after a while. But there is a second, secret tap known to the plumber only. When this one is turned on, the shower delivers hot water immediately. After the first installation of the shower, the plumber tested it by operating the secret tap. Since the shower worked well, the first running of water was a running of hot water. Let us assume as a further essential property of the shower that the secret tap can be used only once: after the first use it is sealed forever by some built-in mechanism. The second time, the shower was used by Otto. He had to operate the red tap. We can describe this situation by means of sentence (1). In virtue of the particular action done by Otto, i.e., turning on the red tap, (2) means the same as (4):

(4) $\text{again}_2(\text{there is an action } x \text{ [Otto does } x \text{ CAUSE cold water runs]})$

The meaning postulate says that this is synonymous with

(5) There is an action x [Otto does x CAUSE $\text{again}_1(\text{cold water runs})$]

This statement entails that the first running of water was a running of cold water, which was not so. This shows that the meaning postulate is not tenable if we assume essential properties. At first sight, it is a bit puzzling that (2) entails (4). The situation is similar for an entailment between *Fritz is human* and *Fritz is male*. If it is essential for Fritz to have the two properties, the two statements are true in the same worlds.

To state Zimmermann's argument somewhat differently:

The individual action e which satisfies (2) is similar to Fritz: it causes the running of water, even of *cold* water. Therefore, for this particular e , (2) and (5) are synonymous:

- (6) Otto does e CAUSE water runs
 (7) Otto does e CAUSE cold water runs

Dowty's postulate entails for this particular e that it is the cause of the truth of the statement.

- (8) again₁ (cold water runs)

Thus, Zimmermann's argument refutes Dowty's postulate indeed. If we look carefully at the argument, we discover that the erroneous assumption is that we can discover those qualities of the result of an individual event which are needed for describing the "state restituted" by investigating the event itself. This is not possible. We have to modify the "target state information" itself, i.e., that property of states which is embedded under BECOME in our treatment.

Appendix 2: The relation between Kratzer's f_{target} and Dowty's BECOME

In the article, I have been using Dowty's BECOME-functor. I have found little evidence for the syntactic representation of this morpheme. *again* always seems to have narrow scope with respect to BECOME or scope over the VoiceP which contains BECOME if we look at result verbs. In particular, it was hard to argue for intermediate readings, where **again** has scope between **agent** and BECOME. Thus, it would be nice to get rid of BECOME. Kratzer (1994) has found a method of encoding the result information without the BECOME-functor. Here I would like to explain the reasons why I didn't follow her in this respect.

Kratzer (1994) would presumably represent a result verb like "to catch" as something like this:³²

- (1) **catch** := $\lambda x \lambda e$ **prisoner** (x)($f_{target}(e)$)

Let me comment first on Kratzer's functor f_{target} . It denotes a function defined only for events or actions which have a result. It assigns that result to the action. $f_{target}(e)$ is what Klein (1994) calls the *target state* of an action. If P is a predicate of states, then $P(f_{target}(e))$ always implies or rather presupposes that P does not hold of an earlier stage of e . Suppose, we understand the function f_{target} . Then rule (1) correctly states that the object of the catching is a prisoner only at the end of the catching.

Recall that we analyzed the verb "to catch" as:

³²Cf. Kratzer (1994), chapter 2, page 35.

$$(2) \quad \lambda x \lambda e \text{ BECOME}(e)(\mathbf{prisoner}(x))$$

In other words, the result has to be described by means of a propositional functor, and not by a function of an event. Although the details are not entirely clear to me, let us suppose that Kratzer's and our representation of the verb mean exactly the same. In other words, we assume that the following statement is a necessary truth:

$$(3) \quad \lambda x \lambda e \text{ BECOME}(e)(\mathbf{prisoner}(x)) = \lambda x \lambda e \mathbf{prisoner}(x)(f_{\text{target}}(e))$$

Recall, however, that the BECOME-functor has its own place in the syntax. Therefore it can have scope in the syntax. As far as I have understood Kratzer, no analogue syntactic decomposition is intended for her verbs. The definiens in entry (1) may be regarded as a two-place function, and that's it.

It is no problem to formalize the repetitive reading of "Randi caught Bockhirsch again" by means of Kratzer's verb meaning:

$$(4) \quad \mathbf{again}[\lambda e(\mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{catch}(\mathbf{Bockhirsch})(e))](e)$$

This means that Randi did an action whose result was that Bockhirsch was a prisoner, and there was such an action of Randi's before. A problem arises, however, when we want to express the restitutive reading. We can try to represent this by giving **again**(e) narrow scope with respect to agentivity:

$$(5) \quad \mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{again}[\mathbf{catch}(\mathbf{Bockhirsch})](e)$$

This cannot be correct. If we evaluate (5) by means of the definitions of **catch** and **again**, we obtain the following meaning:

$$(6) \quad \text{Content: } \mathbf{agent}(\mathbf{Randi})(e) \ \& \ \mathbf{prisoner}(\mathbf{Bockhirsch})(f_{\text{res}}(e))$$

Presupposition:

$$\exists e^*[\text{MAX}(\mathbf{prisoner}(\mathbf{Bockhirsch}))(f_{\text{res}}(e^*)) \ \& \ \text{TIME}(e^*) < \text{TIME}(e)]$$

This means that Randi caught Bockhirsch and that there had been a successful catching of him before. We don't want this reading. We rather want the statement: "Randi caught Bockhirsch and he had been a prisoner before".

The conclusion I draw from this reasoning is that an analysis of resultative verbs in the style of (1) is too simple. We need something like (2), which is essentially Dowty's (1979) decomposition.

References

- Abusch, Dorti. (1985). *On Verbs and Time*. PhD Dissertation. University of Massachusetts, Amherst.
- Baker, Mark C. (1985a). The Mirror Principle and Morphosyntactic Explanation. *Linguistic Inquiry* 16, 371-416.
- . (1985b). *Incorporation: A Theory of Grammatical Function Changing*. PhD Dissertation. Cambridge, Mass.: MIT.
- . (1988). *Incorporation. A Theory of Grammatical Function Changing*. Chicago and London: The University of Chicago Press.
- Besten, Hans den. (1985). The Ergative Hypothesis and Free Word Order in Dutch and German. In: Thoman, Jindrich (ed.). *Studies in German Grammar*. Dordrecht: Foris. 23-64.
- Bierwisch, Manfred. (1963). Grammatik des deutschen Verbs. *Studia Grammatica*. Berlin: Akademie Verlag.
- Borer, Hagit. (1988). On the Morphological Parallelism between Compounds and Construct. In Booij, Geert and Jaap van Marle (eds.), *Yearbook of Morphology 1*. Dordrecht: Foris.
- . (to appear) The Morphology-Syntax Interface: A Study of Autonomy. To appear in the proceedings of the Krems conference on Morphology, July 1992.
- Burzio, Luigi. (1981). *Intransitive Verbs and Italian Auxiliaries*. PhD Dissertation. Cambridge, Mass.:MIT.
- Carrier, Jill and Janet H. Randall. (1992). The Argument Structure and Syntactic Structure of Resultatives. *Linguistic Inquiry* 23, 173 - 235.
- Chomsky, Noam. (1981). *Lectures on Government and Binding*. Dordrecht: Foris.
- . (1986). *Knowledge of Language*. New York: Praeger.
- . (1989). Some Notes on Economy of Derivation and Representation. *MIT Working Papers in Linguistics* 10, 43-74.
- . (1992). A Minimalist Program for Linguistic Theory. *MIT Occasional Papers in Linguistics* 1. Cambridge, Mass.: MIT.
- .(1994). Bare Phrase Structure. *MIT Occasional Papers in Linguistics* 5. Cambridge, Mass.: MIT.
- Diesing, Molly. (1990a). The Syntactic Roots of Semantic Partition. PhD Thesis. Amherst: University of Massachusetts.
- . (1990b). Verb Movement and the Subject Position in Yiddish. *Natural Language and Linguistic Theory* 8, 41-79.
- . (1992). Bare Plural Subjects and the Derivation of Logical Representations. *Linguistic Inquiry* 23. 353-380.
- . (1995). Yiddish VP Order and the Typology of Object Movement in Germanic. Unpublished manuscript. To appear in *Natural Language and Linguistic Theory*.

- Dowty, David R. (1979). *Word Meaning and Montague Grammar*. Dordrecht: Reidel.
- Egg, Markus. (1993). *Aktionsart und Kompositionalität: Zur kompositionellen Ableitung der Aktionsart komplexer Kategorien*. Dissertation. Universität Konstanz.
- Fabricius-Hansen, Catherine. (1980). Lexikalische Dekomposition, Bedeutungspostulate und *wieder*. In: D. Kastovsky (ed.), *Perspektiven der lexikalischen Semantik*. Bonn: 26-41.
- .(1983). *Wieder ein wieder?* Zur Semantik von *wieder*. In: R. Bäuerle, C. Schwarze and A. von Stechow (eds.), *Meaning, Use and Interpretation of Language*. Berlin and New York: de Gruyter.
- . (1994a). *Wieder*. Handout. Universität Tübingen, July 6 1994.
- . (1994b). *Wieder*. Handout. Blaubeuren, October 1994.
- Gallin, D. (1975). *Intensional and Higher-Order Modal Logic*. Amsterdam. North-Holland.
- Jacobs, J. (1980). Lexical Decomposition in Montague Grammar. *Theoretical Linguistics* 7, 121-136.
- Klein, W. (1994). *Time in Language*. London and New York: Routledge.
- Kratzer, Angelika. (1994). *The Event Argument and the Semantics of Voice*. Manuscript. Amherst: University of Massachusetts.
- Krifka, M. (1989). *Nominalreferenz und Zeitkonstitution. Zur Semantik von Massentermen, Pluraltermen und Aspektklassen*. München: Fink.
- Lasnik, Howard. (1981). Restricting the Theory of Transformations: A Case Study. In: Norbert Hornstein and David Lightfoot (eds.), *Explanation in Linguistics: The Logical Problem of Language Acquisition*. London: Longman.
- Lewis, David. (1973). Causation. *The Journal of Philosophy* 70, 55 -67.
- . (1979). Attitudes De Dicto and De Se. *The Philosophical Review* 88, 13-43.
- Partee, B. (1973). Some Structural Analogies between Tenses and Pronouns in English. *Journal of Philosophy* 70, 601-609.
- Perlmutter, David M. (1978). Impersonal Passives and the Unaccusative Hypothesis. In: *Proceedings of the Fourth Annual Meeting of the Berkeley Linguistics Society*, Berkeley, California, 157-89.
- Pollock, J.Y. (1989). Verb Movement, UG and the Structure of IP. *Linguistic Inquiry* 20, 365-424.
- Pullum, Geoffrey K. (1991). *The Great Eskimo Vocabulary Hoax and Other Irreverent Essays on the Study of Language*. Chicago and London: The University of Chicago Press.
- Rapp, Irene. (1995). *Partizipien und semantische Struktur. Zu passivischen Konstruktionen mit dem 3. Status*. Dissertation. Universität Tübingen.
- Seuren, P.A.M. (1973). The Comparative. In: F. Kiefer and N. Ruwet (eds.), *Generative Grammar in Europe*. Dordrecht: Reidel. 528-564.

- Stechow, A. von. (1984a). Comparing Semantic Theories of Comparison. *Journal of Semantics* 3, 1-77.
- . (1984b). My Reaction to Cresswell's, Hellan's, Hoeksema's and Seuren's Comments. *Journal of Semantics* 3, 183-199.
- . (1995). Lexical Decomposition in Syntax. In: Egli, U., Pause, P.E., Schwarze, Ch., Stechow, A. von, Wienold, G. (eds.), *The Lexicon in the Organization of Language*. Amsterdam/Philadelphia: John Benjamins Publishing Company. 81-118.
- Stechow, A. von and W. Sternefeld. (1988). *Bausteine syntaktischen Wissens*. Opladen: Westdeutscher Verlag.
- Sternefeld, Wolfgang. On Case and Binding Theory. In: *Studies in German Grammar*. Thoman, Jindrich (ed.). Dordrecht: Reidel. 231-285.
- . (1995). Voice Phrases and their Specifiers. Seminar für Sprachwissenschaft. SfS-Report-05-95. Universität Tübingen.
- Stowell, Timothy. (1981). *Origins of Phrase Structure*. PhD Dissertation. Cambridge, Mass.: MIT.
- . Syntax of Tense. (1993). Manuscript. UCLA.
- Zimmermann, Ede T. (1993). Zu Risiken und Nebenwirkungen von Bedeutungs-
postulaten. *Linguistische Berichte* 146, 263 - 282.